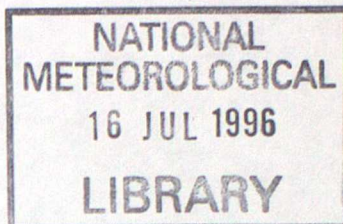


DUPLICATE ALSO



**UK METEOROLOGICAL OFFICE
GLOBAL DATA MONITORING REPORT**

June, 1996

**Data Assimilation
Meteorological Office
London Rd
Bracknell
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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis. The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIBU observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At RSMC Bracknell, for synoptic stations at or below a height of 500 metres, reported mean sea-level pressure is used in the statistics. If this is unavailable the mean sea-level pressure is calculated from the reported station-level pressure and temperature.

For synoptic stations above 500 metres, the mean sea-level pressure is calculated from the reported station-level pressure and temperature, or, if these are not available the height of a standard pressure-level (e.g.: 850 hPa or 700 hPa). If neither of these are available, the reported mean sea-level pressure is used.

Some stations vary their reporting practice according to the observation hour (e.g.: some stations in the CIS report both mean sea-level and station-level pressure at 00 & 12 UTC, but only mean sea-level pressure at 06 & 18 UTC). For monitoring purposes, reported mean sea-level pressure is stored separately from that calculated from station-level pressure

or height of a standard pressure-level. Only statistics for the preferred method (see above) are presented in this report, and so for certain high-level stations, such as those from the CIS, approximately half of the number of observations actually received will appear in the statistics.

Aircraft observations

TABLE 4 contains a list of statistics calculated from data received from all airline carriers.

Figure 3 shows 10 degree lat/long box average numbers of AIREP/ASDAR reports received per day throughout the month at Bracknell and assimilated into model runs in the layer 70-500 hPa. Observations with a vector wind difference (compared with the model background field) of $>60 \text{ m s}^{-1}$ have been excluded. Box average values are plotted as the nearest whole number (values of $x.5$ are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5 , then 0 is plotted.

Figures 4-7 show wind statistics for AIREP/ASDAR in the layer 70-500 hPa. Observations with a vector wind difference $> 60 \text{ m s}^{-1}$ have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure Parameter

- | | |
|---|---|
| 4 | Mean wind vectors |
| 5 | Mean observation - background wind vector |
| 6 | Mean observation-background speed (m s^{-1}) |
| 7 | RMS observation-background vector (m s^{-1}) |

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of $x.5$ are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5 , then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-27 show satellite mean observation-background temperature differences for NOAA-12 soundings at 500 km resolution and figures 28-30 show the same statistics for NOAA-14. Data are plotted where there are > 30 observations in a 10 degree lat/long box.

Figure	Layer (hPa)
25/28	850-1000
26/29	100-300
27/30	30-50

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area 10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics (**Geopotential Height and Windspeed at 100 and 500 hPa**) for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

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Revisions

1. May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
2. May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.
3. August 95 Monitoring statistics for NOAA-14 added with figures 28-30.
4. February 96 Monitoring statistics for GOES-7 has been replaced by statistics for GOES-8 and GOES-9.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH: June, 1996

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from each unique identifier for ships, fixed buoys and platforms.
Standard of comparison	:Background field from Bracknell global model.
Observation times	:00, 06, 12, 18 UTC
Elements monitored	:Mean sea level pressure (hPa). :Wind speed (m s^{-1}). :Wind direction (Degrees).

Parameters monitored

:NOBS	:Number of observations received excluding duplicates.
:NGE	:Number of observations with gross errors.
:PGE	:Percentage of observations with gross errors.
:SD	:SD of difference of observations from background values excluding those with gross errors.
:BIAS	:Mean difference of observations from background values excluding those with gross errors. N.B. a positive bias indicates the observation is veered to the background.
:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT :15 hPa (pressure)
:25 m s^{-1} (vector wind)

SELECTION CRITERIA	:NOBS	≥ 20 , and one or more of the following:
	1. bias	≥ 4 hPa (pressure), ≥ 5 m s^{-1} (wind speed), ≥ 30 degrees (direction).
	2.SD	≥ 6 hPa (pressure), ≥ 80 degrees (direction).
	3.PGE	≥ 25

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
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MEAN SEA LEVEL PRESURE

CYGR	ALL	MSLP	SUR	21	16	76	3.4	-9.5	10.1
C6IL3	ALL	MSLP	SUR	30	0	0	1.2	10.9	11.0
C6KP2	ALL	MSLP	SUR	38	13	34	5.6	5.4	7.8
C6LI6	ALL	MSLP	SUR	26	0	0	0.8	9.0	9.1
C6LU3	ALL	MSLP	SUR	21	1	5	1.4	12.3	12.4
ELIT9	ALL	MSLP	SUR	27	0	0	2.7	-4.6	5.3
ELRE5	ALL	MSLP	SUR	59	0	0	1.7	5.5	5.7
EUJV	ALL	MSLP	SUR	21	0	0	2.7	8.5	9.0
P3XM4	ALL	MSLP	SUR	52	0	0	0.9	-4.6	4.7
S6CL	ALL	MSLP	SUR	44	0	0	1.9	5.8	6.1
TFLE	ALL	MSLP	SUR	30	0	0	0.8	-5.8	5.9
UDUE	ALL	MSLP	SUR	20	1	5	1.0	9.6	9.6
UPUA	ALL	MSLP	SUR	32	20	63	2.0	-11.8	12.0
URHJ	ALL	MSLP	SUR	20	2	10	4.5	-4.2	6.1
VDLC	ALL	MSLP	SUR	21	0	0	1.9	-6.1	6.4
VOPM	ALL	MSLP	SUR	71	45	63	4.4	-6.5	7.9
VRUH6	ALL	MSLP	SUR	49	0	0	0.7	5.2	5.2
V2QU	ALL	MSLP	SUR	23	0	0	1.4	-6.9	7.1
WBF2376	ALL	MSLP	SUR	21	0	0	2.0	4.2	4.6
3EWJ9	ALL	MSLP	SUR	20	0	0	0.6	4.1	4.1
3FGQ3	ALL	MSLP	SUR	23	0	0	1.1	5.9	6.0
3FZW	ALL	MSLP	SUR	22	0	0	1.1	6.2	6.3
9MBQ6	ALL	MSLP	SUR	46	0	0	2.6	-6.5	7.0
9VIH	ALL	MSLP	SUR	41	0	0	1.8	-4.8	5.2

WIND SPEED

C6CS2	ALL	SPEED	SUR	45	0	0	4.9	5.5	7.4
DEGY	ALL	SPEED	SUR	32	0	0	4.2	5.1	6.6
FNHV	ALL	SPEED	SUR	57	1	2	3.4	5.1	6.1
FNNK	ALL	SPEED	SUR	66	1	2	6.5	7.6	10.0
NNUD	ALL	SPEED	SUR	26	1	4	5.2	6.3	8.1
OZIA	ALL	SPEED	SUR	58	0	0	7.3	7.5	10.5
PCUI	ALL	SPEED	SUR	44	0	0	4.8	5.0	7.0
PEMA	ALL	SPEED	SUR	20	0	0	6.7	6.3	9.2
PGDF	ALL	SPEED	SUR	35	1	3	6.9	6.8	9.7
PGDL	ALL	SPEED	SUR	27	0	0	6.0	5.2	7.9
PGEV	ALL	SPEED	SUR	41	0	0	5.5	5.0	7.4
PJVV	ALL	SPEED	SUR	27	0	0	4.6	9.8	10.9
P3ZZ6	ALL	SPEED	SUR	38	0	0	3.8	5.1	6.4
VJDI	ALL	SPEED	SUR	32	0	0	5.9	8.1	10.1
ZCAV8	ALL	SPEED	SUR	62	0	0	2.9	5.4	6.1
9MSM	ALL	SPEED	SUR	50	0	0	5.1	7.9	9.4
9MTZ	ALL	SPEED	SUR	39	0	0	4.9	8.9	10.2
9VPP	ALL	SPEED	SUR	24	3	13	6.5	11.8	13.5

WIND DIRECTION

CG2614	ALL	DIRN.	SUR	34	0	0	32.5	31.0	44.9
DBBC	ALL	DIRN.	SUR	44	0	0	15.4	-32.0	35.5
P3TP6	ALL	DIRN.	SUR	26	0	0	106.8	-69.3	127.4
32315	ALL	DIRN.	SUR	60	0	0	40.3	30.2	50.4
41001	ALL	DIRN.	SUR	98	0	0	21.5	-33.8	40.0
44153	ALL	DIRN.	SUR	71	0	0	26.5	-32.7	42.1
45001	ALL	DIRN.	SUR	40	0	0	30.1	-34.4	45.7
45006	ALL	DIRN.	SUR	31	0	0	36.5	-43.6	56.9
45007	ALL	DIRN.	SUR	30	0	0	22.6	-46.9	52.0
45008	ALL	DIRN.	SUR	38	0	0	18.5	-33.2	38.0
45139	ALL	DIRN.	SUR	61	0	0	57.2	-31.6	65.3
45142	ALL	DIRN.	SUR	40	0	0	40.2	-36.3	54.1
46027	ALL	DIRN.	SUR	56	0	0	17.5	-30.9	35.5
46030	ALL	DIRN.	SUR	92	0	0	18.1	32.0	36.8
46045	ALL	DIRN.	SUR	21	0	0	48.5	63.5	79.9

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND DIRECTION									
46053	ALL	DIRN.	SUR	54	0	0	33.8	-45.1	56.4
51003	ALL	DIRN.	SUR	92	0	0	18.1	-30.8	35.7
51009	ALL	DIRN.	SUR	23	0	0	16.3	-33.4	37.2
51307	ALL	DIRN.	SUR	67	0	0	75.0	33.0	82.0
52310	ALL	DIRN.	SUR	49	0	0	22.5	34.3	41.0
52317	ALL	DIRN.	SUR	25	0	0	109.3	18.8	110.9
62165	ALL	DIRN.	SUR	68	0	0	112.7	-58.5	127.0

FIGURE 1

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 18188

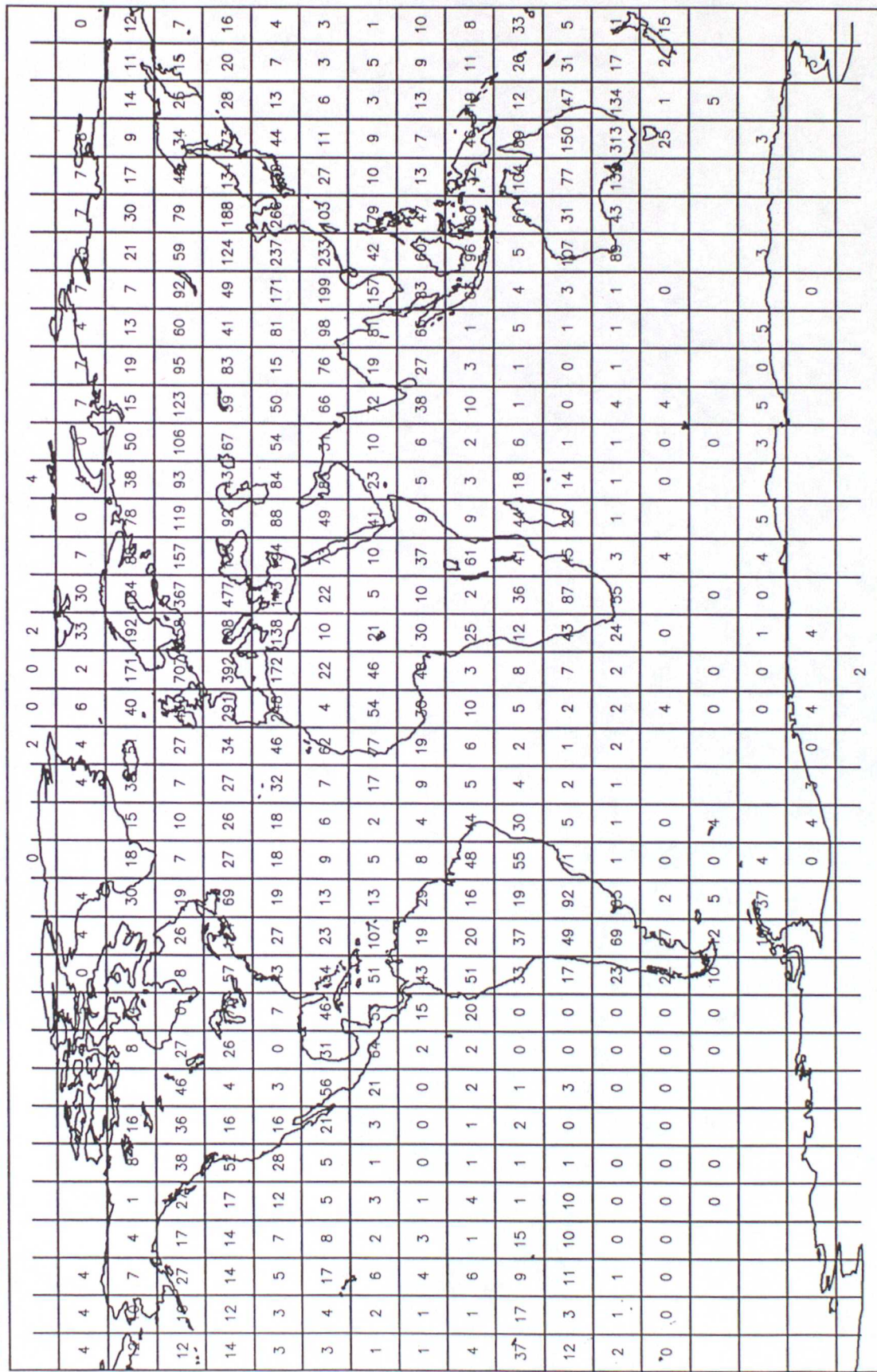


TABLE 2

**MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH: June, 1996**

Monitoring procedures

Period	:One calendar month.	
Data monitored	:Reports from each unique identifier for drifting buoys.	
Standard of comparison	:Background field from Bracknell global model.	
Position	:Average latitude and longitude for period.	
Observation times	:00, 06, 12, 18 UTC	
Elements monitored	:Mean sea level pressure (hPa). :Wind speed (m s^{-1}). :Wind direction (degrees).	
Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. N.B. a positive bias indicates the observation is veered to the background.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa :25 m s^{-1}	(pressure) (vector wind)
SELECTION CRITERIA :	NOBS	≥ 20 , and one or more of the following:
	1. bias	≥ 4 hPa (pressure), ≥ 5 m s^{-1} (wind speed), ≥ 30 degrees (direction).
	2. SD	≥ 6 hPa (pressure), ≥ 80 degrees (direction).
	3. PGE	≥ 25 .

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed $> 5 \text{ m s}^{-1}$

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
------------	------	-------	------	------	-------	------	-----	-----	----	------	-----

MEAN SEA LEVEL PRESSURE

17615	-37.6	12.1	ALL	MSLP	SUR	203	5	2	3.8	4.1	5.6
23924	20.2	86.9	ALL	MSLP	SUR	195	195	100	0.0	0.0	0.0
33531	-29.6	-11.0	ALL	MSLP	SUR	36	0	0	2.0	5.3	5.7
33546	-31.8	-30.2	ALL	MSLP	SUR	69	35	51	1.1	13.5	13.5
33951	-38.7	14.8	ALL	MSLP	SUR	110	4	4	2.7	-9.9	10.3
48531	79.3	-131.3	ALL	MSLP	SUR	50	0	0	3.8	4.0	5.5
51637	22.3	-160.0	ALL	MSLP	SUR	135	106	79	2.1	3.6	4.2
54907	-35.3	-176.9	ALL	MSLP	SUR	104	17	16	6.4	-4.2	7.6
63661	44.7	-63.6	ALL	MSLP	SUR	21	2	10	1.1	7.2	7.3
71591	-68.7	-41.3	ALL	MSLP	SUR	645	0	0	3.1	4.9	5.8

WIND DIRECTION

41585	33.0	-45.5	ALL	DIRN.	SUR	66	0	0	52.0	-57.8	77.8
46557	38.3	-141.3	ALL	DIRN.	SUR	65	0	0	33.4	-34.9	48.3
46558	40.6	-132.2	ALL	DIRN.	SUR	22	0	0	20.2	-36.3	41.5
48531	79.3	-131.3	ALL	DIRN.	SUR	63	0	0	25.7	30.9	40.2
91828	8.6	149.7	ALL	DIRN.	SUR	70	0	0	14.3	-35.0	37.8
91838	5.3	153.7	ALL	DIRN.	SUR	21	0	0	30.9	-43.9	53.7
91852	6.2	160.7	ALL	DIRN.	SUR	49	0	0	8.9	-106.7	107.1

FIGURE 2

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 5188

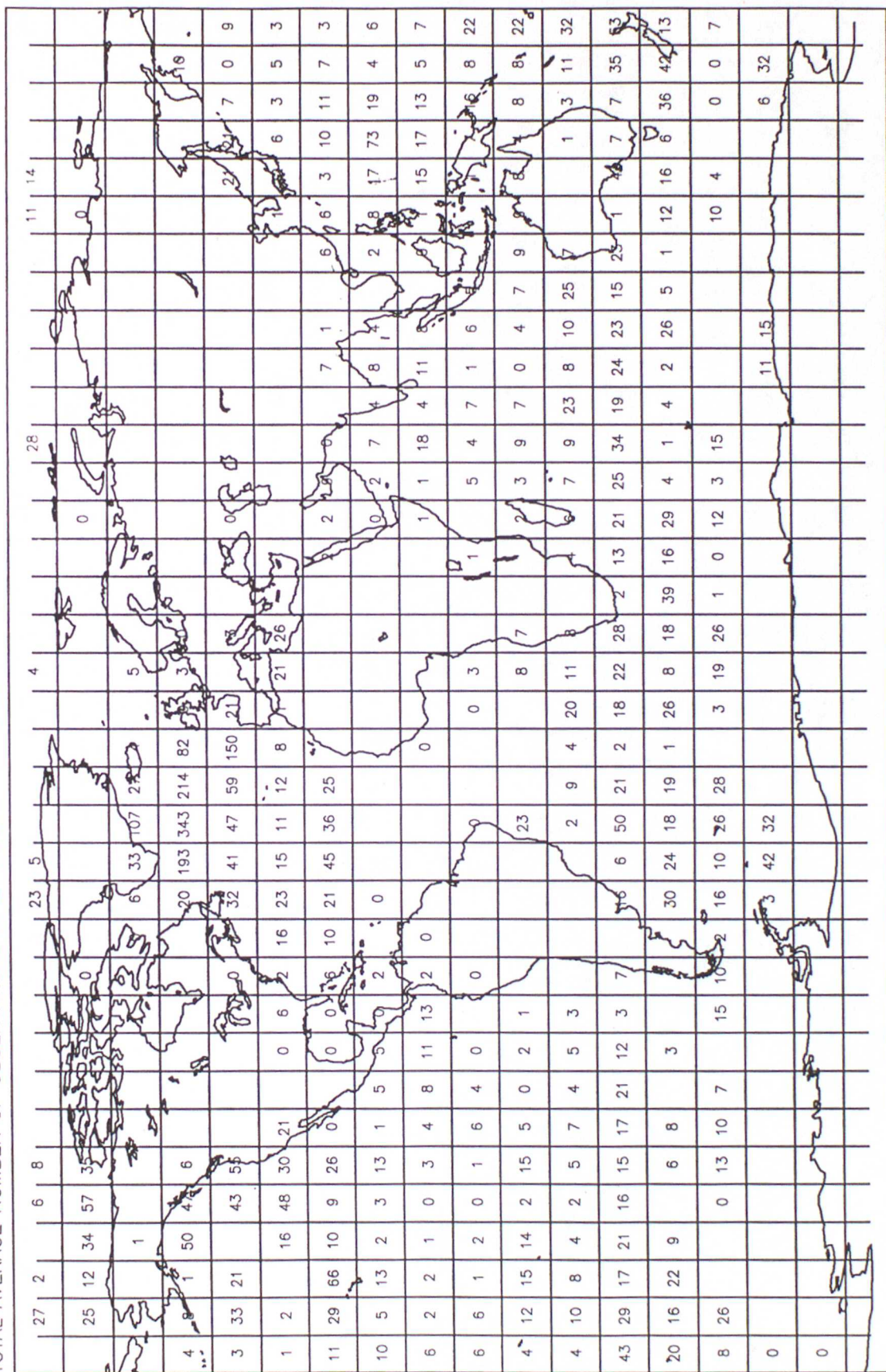


TABLE 3

**MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH: June, 1996**

Monitoring procedures

Period	:One calendar month.	
Data monitored	:Reports from each unique identifier for synops & autosynops.	
Standard of comparison	:Background field from Bracknell global model.	
Observation times	:00, 06, 12, 18 UTC	
Elements monitored	:Mean sea level pressure (hPa).	
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1. bias	≥ 4 hPa
	2. SD	≥ 6 hPa
	3. PGE	≥ 25.

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT (M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60010	28.3N	16.5W	2368	S7	77	0	0	51	1.4	-4.6	4.8
60445	36.2N	5.4E	1081	S8	100	0	0	92	0.8	4.7	4.8
60468	35.6N	6.2E	1052	S8	103	102	99	0	0.0	0.7	0.7
60511	35.3N	1.4E	1127	S8	104	103	99	0	0.0	10.8	10.8
60535	34.7N	3.3E	1144	S8	75	1	1	89	1.8	-5.8	6.1
60670	24.6N	9.5E	1054	S8	108	0	0	98	1.4	8.4	8.5
63330	13.5N	39.5E	2212	MS	37	1	3	19	0.6	-4.3	4.3
63333	11.1N	39.7E	1916	MS	48	2	4	85	0.7	7.1	7.1
63453	8.8N	39.8E	1062	S	35	0	0	100	1.3	12.3	12.4
63478	5.1N	44.6E	320	MS	34	0	0	3	1.4	7.7	7.8
68014	19.6S	18.1E	1411	S8	80	1	1	94	1.0	-6.3	6.4
68018	17.9S	19.8E	1083	S8	71	0	0	3	1.1	-4.3	4.4
68396	26.5S	31.3E	641	S8	38	0	0	66	1.2	4.1	4.3
68442	29.1S	26.3E	1354	S8	91	0	0	100	0.8	-6.0	6.1
68752	32.8S	27.4E	524	S8	55	0	0	91	6.4	-3.3	7.2

WMO REGION 2:

STATION	LAT	LONG	HT (M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
28984	52.9N	70.2E	395	MS	104	48	46	72	6.9	3.1	7.6
30554	54.5N	113.6E	995	MS	58	0	0	100	1.4	10.2	10.3
31915	44.4N	131.4E	211	MS	113	0	0	33	1.2	-5.0	5.1
40701	39.3N	44.4E	1470	MS	93	2	2	96	1.1	6.2	6.3
40740	36.8N	54.3E	1287	MS	41	1	2	34	1.7	-5.3	5.6
40743	36.2N	57.7E	941	MS	106	0	0	42	1.4	-6.3	6.5
40762	35.3N	59.2E	1333	MS	101	32	32	0	0.9	-13.7	13.7
40763	35.2N	58.5E	1060	MS	40	0	0	40	1.5	-7.2	7.4
40783	32.4N	49.7E	1972	S7	87	0	0	54	1.3	-5.9	6.0
40789	33.8N	55.1E	921	MS	70	1	1	89	1.7	7.5	7.7
40836	30.8N	51.7E	1880	MS	82	0	0	100	1.0	8.1	8.2
40859	29.0N	53.7E	1383	MS	78	1	1	100	0.9	8.3	8.3
41254	23.1N	57.7E	1755	S8	83	83	100	0	0.0	0.0	0.0
41396	16.0N	48.9E	700	MS	23	0	0	57	1.1	6.0	6.1
44232	49.4N	102.7E	933	MS	41	1	2	49	2.4	-4.5	5.1
44277	46.4N	96.3E	2147	MS	46	1	2	13	1.8	-4.3	4.7
44298	46.4N	108.2E	1285	MS	49	0	0	24	1.7	4.1	4.4
44416	28.6N	81.6E	720	MS	59	0	0	12	2.3	4.1	4.7
44477	27.0N	87.4E	1445	S8	54	54	100	0	0.0	0.0	0.0
52602	38.8N	93.4E	2734	S	116	0	0	7	1.8	-4.8	5.1
56444	28.5N	98.9E	3488	S	114	114	100	0	0.0	0.0	0.0
56462	29.0N	101.5E	2994	S	104	0	0	99	2.2	7.5	7.8
57816	26.5N	106.7E	1222	MS	115	113	98	35	0.1	14.8	14.8

WMO REGION 3:

STATION	LAT	LONG	HT (M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	128	M	22	0	0	0	0.6	-5.4	5.4
82704	7.6S	72.7W	170	MS	60	0	0	0	1.7	-5.0	5.3
83235	12.4S	46.4W	660	MS	28	0	0	93	1.0	6.3	6.4
83319	14.7S	52.4W	315	MS	22	0	0	5	2.3	-5.9	6.3
83332	14.1S	46.4W	950	MS	28	6	21	0	1.3	13.5	13.6
83376	15.9S	49.0W	730	MS	29	1	3	21	2.1	-4.4	4.9
83408	14.3S	43.8W	556	MS	24	0	0	100	1.5	11.1	11.2
83423	16.7S	49.3W	729	MS	29	0	0	62	1.5	-6.0	6.2
83488	17.8S	42.9W	1097	MS	23	23	100	0	0.0	0.0	0.0
83587	19.9S	43.9W	850	MS	66	0	0	97	1.3	-8.3	8.4
83689	21.3S	43.8W	1171	MS	22	0	0	91	1.0	4.4	4.5
83704	22.3S	53.9W	369	MS	25	12	48	52	1.2	-11.0	11.1
83836	25.5S	50.6W	837	MS	73	0	0	38	1.2	-4.6	4.8
83916	28.2S	51.5W	806	MS	28	0	0	68	1.2	-4.8	4.9

WMO REGION 3:

STATION	LAT	LONG	HT (M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
84401	5.2S	80.6W	55	MS	116	0	0	9	1.6	5.2	5.4
84455	6.5S	76.4W	282	MS	115	1	1	2	2.7	6.9	7.4
84472	7.1S	78.5W	2622	S	34	1	3	85	1.7	-5.7	5.9
84501	8.1S	79.0W	30	MS	113	0	0	0	1.6	5.5	5.7
84542	9.4S	77.6W	2760	S	45	1	2	0	1.7	5.4	5.7
84686	13.6S	72.0W	3249	S	115	0	0	4	1.8	-5.4	5.7
84782	18.1S	70.3W	469	MS	115	0	0	0	1.6	8.4	8.6
85406	18.3S	70.3W	58	M	110	0	0	4	1.5	6.5	6.7

WMO REGION 4:

STATION	LAT	LONG	HT (M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
71632	45.8N	80.5W	190	MS	93	12	13	53	6.2	0.3	6.2
76118	30.4N	109.7W	1040	MS	38	0	0	100	0.8	-9.4	9.4
76539	22.1N	101.0W	1871	MS	87	1	1	59	0.8	-4.5	4.6
76632	20.1N	98.7W	2417	MS	54	2	4	46	0.9	-6.1	6.2
76634	20.1N	98.4W	2135	MS	96	0	0	46	0.9	-5.2	5.3
76658	19.2N	103.7W	494	MS	32	0	0	3	1.7	5.2	5.5
76698	19.6N	88.0W	20	S	32	0	0	28	1.0	-5.1	5.2
76726	18.9N	99.3W	1560	MS	82	2	2	99	1.3	-7.6	7.7
76750	18.5N	88.3W	3	MS	90	0	0	0	0.9	-4.1	4.2
76762	17.5N	99.5W	1360	MS	71	1	1	100	1.2	11.7	11.8
76775	17.1N	96.7W	1550	MS	68	1	1	21	1.0	4.0	4.1
76848	16.3N	92.1W	1530	MS	82	5	6	67	3.0	-13.1	13.4

WMO REGION 5:

STATION	LAT	LONG	HT (M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
91339	5.5N	153.8E	3	M	50	0	0	0	1.1	-4.6	4.7

WMO REGION 6:

STATION	LAT	LONG	HT (M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
01245	62.6N	9.7E	630	MS	86	1	1	99	1.0	-5.5	5.6
02045	67.8N	20.4E	408	M	111	111	100	0	0.0	0.0	0.0
08221	40.5N	3.6W	633	MS	112	1	1	95	1.2	5.5	5.6
11024	48.4N	15.4E	860	S8	114	4	4	66	0.8	-13.0	13.0
11346	47.3N	12.8E	917	S8	85	0	0	11	1.4	-4.7	4.9
16020	46.5N	11.3E	1461	MS	84	84	100	0	0.0	0.0	0.0
16227	41.9N	13.6E	655	MS	116	110	95	0	0.6	5.9	5.9
16549	39.1N	8.3E	12	MS	116	0	0	24	0.9	-4.9	5.0
16614	40.4N	21.3E	604	MS	108	1	1	99	1.3	-7.3	7.4
40072	34.4N	40.9E	182	M	78	0	0	6	1.4	-4.2	4.4

ANTARCTIC:

STATION	LAT	LONG	HT (M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89262	67.0S	60.6W	17	MS	29	0	0	14	3.4	-4.5	5.6
89664	77.9S	166.7E	24	MS	90	2	2	1	2.7	-5.1	5.8
89744	74.0S	43.0E	3353	S	80	1	1	13	2.9	6.0	6.7
89803	68.5S	102.2E	2118	S	86	7	8	63	2.7	-10.1	10.5
89805	74.1S	109.8E	3070	S7	23	6	26	30	4.5	-3.0	5.4
89813	71.6S	111.3E	2740	S	88	3	3	9	3.5	-4.2	5.5
89860	74.2S	160.3E	1772	S	78	2	3	17	3.5	-7.6	8.4
89863	74.9S	163.1E	30	MS	32	2	6	9	4.4	-6.8	8.1

TABLE 4

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: June, 1996

Monitoring procedures

Period	:One calendar month.
Data monitored	:Statistics for each airline carrier.
Area monitored	:90°N - 90°S, 180°W - 180°E.
Standard of comparison	:Background field from Bracknell global model.
Observation times	:All hours combined.
Level(s) monitored	:70.0 - 500.0 hPa
Elements monitored	:TEMP in °C ; WIND in m s ⁻¹
Parameters monitored	
	:N REP. :Number of observations received excluding duplicates.
	:PG :Percentage of observations with gross errors.
	:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC :Percentage of observations with calm winds.
	:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.
GROSS ERROR LIMITS	:10.0 °C ; 60 m s ⁻¹ Vector Wind
SELECTION CRITERIA	:N REP ≥ 20

IDENT.	N.REP.	TEMPERATURE				N.REP.	WIND				BIAS
		PG	PR	RMS	BIAS		PG	PR	PC	RMS	
AAA	184	1	3	1.4	0.3	186	0	2	0	9.1	0.7
AAL	5628	0	1	1.7	0.2	5613	0	1	0	7.5	0.8
AAN	172	1	1	1.6	-0.3	164	0	3	1	7.6	0.1
AAR	1854	1	1	1.6	0.0	1842	0	3	0	8.5	1.0
ACA	1598	0	2	2.0	0.3	1641	0	2	1	6.8	0.2
ACI	24	17	17	1.9	0.3	21	0	5	0	11.4	-1.9
AEA	513	9	43	2.8	1.2	495	0	5	0	9.3	1.3
AEL	528	0	2	1.9	-0.1	535	0	4	0	8.1	1.0
AFL	232	1	100	3.3	1.6	234	0	9	0	8.5	1.0
AFR	1330	1	2	1.7	-0.1	1358	0	4	1	7.2	0.8
AIC	30	0	0	2.4	1.2	33	0	3	0	12.3	2.6
AIH	167	2	6	1.7	-0.2	169	0	5	1	9.1	0.6
AJM	31	0	3	1.3	-0.5	32	0	3	0	6.0	0.0
AMT	501	0	1	1.5	0.6	517	0	2	0	6.8	0.0
AMX	270	1	3	1.9	0.3	272	0	3	0	9.3	1.0
ANA	775	1	1	1.8	-0.4	776	0	2	1	8.2	1.1
ANZ	2513	1	3	2.0	-0.4	2500	0	3	1	9.0	0.6
AOM	554	1	3	1.7	1.0	560	0	3	0	7.6	1.0
ARP	39	5	3	2.4	1.8	39	0	0	0	6.2	1.4
ASY	32	3	3	1.4	0.8	31	0	0	0	8.5	-2.0
ATN	59	7	14	2.3	0.0	62	0	100	0	14.8	6.0
AUA	41	0	0	1.6	-0.8	39	0	0	0	6.8	1.9
AVA	366	1	2	1.7	0.2	370	0	2	0	7.3	0.8
AVN	36	0	0	2.0	0.4	36	3	3	0	6.6	0.3
AZA	577	1	3	2.2	0.3	594	0	3	0	7.6	1.5
BAL	624	1	14	1.6	-0.7	624	0	14	0	6.7	0.8
BAW	1700	0	2	1.9	0.0	1721	0	3	1	7.1	0.7
BBB	82	0	0	1.4	-0.2	82	1	2	0	6.5	1.2
BWA	329	1	2	1.8	1.2	330	0	2	0	6.3	1.0
CAL	1919	0	1	1.6	0.0	1930	0	2	0	8.5	1.0
CCA	158	0	92	2.0	0.6	174	1	94	0	12.0	0.7
CDN	2507	0	1	1.8	0.5	2518	0	2	1	7.5	0.7
CES	147	0	3	1.7	0.5	153	0	30	0	10.1	0.6
CFC	22	14	36	2.1	-0.2	22	0	27	0	7.0	1.6
CFG	1037	0	1	1.8	-0.9	1044	0	3	1	7.2	0.5
CKS	128	2	98	2.9	2.3	128	0	5	0	8.0	0.4
CKT	180	1	6	1.7	0.5	178	0	8	1	7.2	-0.5
CLI	262	0	1	2.1	0.0	266	0	2	0	7.7	0.7
CLX	188	1	1	1.7	-0.3	193	0	1	1	5.5	0.1
CMI	814	1	3	2.1	-0.2	819	0	5	2	8.2	1.2
CMM	438	0	1	1.7	-0.2	443	0	2	0	7.6	0.8
COA	931	0	1	1.8	0.4	928	0	2	1	7.3	0.0
CPA	49	0	0	1.5	-0.2	54	0	0	0	7.5	1.3
CRL	497	1	3	1.5	0.4	505	0	4	1	8.0	0.9
CSA	55	2	2	2.0	-0.1	56	0	2	0	6.4	0.5
CTM	88	0	17	2.4	-0.3	91	0	15	0	8.9	0.2
CUB	300	1	45	3.0	2.0	299	0	100	1	9.8	1.6
DAF	25	4	4	1.3	0.1	25	0	0	0	6.1	1.2
DAL	5612	0	2	2.0	0.7	5187	0	2	0	7.5	0.4
DHL	385	1	100	3.7	-1.3	389	0	6	0	9.5	0.3
DLH	3065	0	6	2.1	0.6	3088	0	10	4	7.0	0.8
DOA	51	0	4	1.1	0.2	52	0	8	0	6.5	0.6
EHD	24	4	0	2.8	-1.3	24	0	4	0	11.6	3.6
EIA	71	0	3	1.4	-0.5	72	0	8	0	8.9	1.0
ELY	137	1	4	1.9	0.1	140	0	6	0	7.7	1.1
EVA	1868	0	1	1.7	-0.4	1930	0	3	0	8.2	0.3
EWV	150	1	100	3.0	0.0	153	0	100	1	15.6	2.6
EXC	20	0	10	2.1	0.5	25	0	16	0	8.6	2.1
FDX	1382	0	1	1.7	0.7	1404	0	3	0	8.1	0.7

IDENT.	N.REP.	TEMPERATURE				N.REP.	WIND				
		PG	PR	RMS	BIAS		PG	PR	PC	RMS	BIAS
FIN	647	0	3	2.1	0.8	643	0	4	1	6.7	0.5
FJI	426	2	2	1.8	0.2	423	0	2	0	9.6	-0.1
FOM	63	6	8	2.2	0.4	73	0	4	0	12.7	-0.5
GAF	235	0	2	2.5	1.1	238	0	5	1	8.8	0.2
GFA	21	0	5	2.3	-0.9	22	0	5	0	7.7	2.9
GHA	22	0	9	2.8	1.4	23	0	9	0	8.6	0.2
GIA	219	0	1	1.5	0.3	222	0	1	0	7.2	-0.2
GTI	68	3	1	1.6	-0.2	68	0	1	0	7.3	1.0
HAL	1573	1	1	1.3	0.4	1576	0	2	0	7.5	0.1
HLF	173	1	2	1.7	-0.6	170	0	2	0	7.7	0.5
HRH	47	0	2	1.7	0.2	47	0	2	0	10.5	-0.4
IBE	1931	1	14	2.0	0.2	1917	0	14	0	7.7	0.9
ICE	577	0	0	1.7	-0.1	573	0	1	1	6.4	1.1
JAA	49	0	2	2.0	1.4	49	0	4	0	7.0	1.0
JAL	6448	0	1	1.7	0.4	6486	0	2	1	7.9	0.9
JAZ	25	0	0	1.8	1.5	25	0	0	0	6.4	0.6
KAL	3554	1	2	1.8	-0.1	3568	0	3	0	8.8	0.9
KIC	62	15	15	2.2	-0.4	69	0	4	0	10.5	-0.3
KLM	2384	0	2	1.8	0.5	2380	0	2	1	6.9	0.8
LDA	210	0	9	1.8	-0.9	213	0	10	0	7.2	0.5
LDI	127	1	18	1.6	-1.1	126	0	20	0	8.0	-0.2
LIB	466	1	3	1.7	0.7	470	0	3	0	7.0	0.6
LKR	34	3	9	2.7	0.4	35	0	3	0	12.2	-0.1
LOT	334	0	0	1.8	-0.8	334	0	2	0	8.6	0.3
LTU	849	0	2	1.7	0.2	825	0	3	1	7.5	0.8
MAS	262	0	1	1.6	-0.3	279	0	4	0	10.0	1.1
MDA	162	0	1	2.1	-0.2	167	0	1	0	8.0	1.0
MON	22	0	0	2.0	0.6	23	0	0	0	8.9	2.8
MPH	859	0	3	2.4	0.3	858	0	1	0	7.2	0.8
NCA	627	0	1	1.6	0.3	622	0	3	1	8.7	0.6
NWA	10077	0	2	2.2	0.8	10068	0	2	1	7.8	0.6
OAL	43	0	0	2.4	1.4	44	0	0	0	6.1	1.0
PAC	90	2	4	1.5	-0.2	92	0	4	0	9.4	0.4
PAL	1019	1	1	1.4	-0.4	1028	0	4	1	8.7	0.3
PAO	170	0	1	1.6	-0.1	171	0	1	0	9.4	-0.3
PNL	81	2	2	2.0	1.1	79	0	4	0	10.6	1.4
QFA	1126	1	2	1.7	-0.1	1128	0	2	0	8.4	0.8
RAF	120	0	1	1.6	0.4	119	0	1	0	7.9	0.9
RCH	393	2	12	3.0	1.0	399	0	16	0	12.2	2.1
RIA	403	0	3	2.3	1.4	404	0	32	0	11.5	1.6
RJA	112	2	4	1.9	0.4	114	0	1	0	7.6	1.3
RKA	80	0	3	2.0	0.1	81	0	2	0	6.8	1.9
RON	20	10	5	1.0	0.4	20	0	10	0	11.7	1.1
RRR	325	1	16	2.2	0.2	327	1	21	2	9.2	1.0
SAA	209	2	1	1.6	-0.2	210	0	2	0	8.6	1.9
SAB	78	0	0	2.4	0.9	80	0	1	0	7.2	2.8
SAS	1393	0	0	1.7	0.0	1388	0	2	1	6.6	0.5
SIA	1362	0	2	1.7	-0.6	1386	0	3	0	8.1	0.5
SLR	87	0	21	1.9	-0.5	88	0	20	0	6.4	-0.4
SOL	43	0	0	1.2	0.3	43	0	0	0	7.6	1.1
SPP	101	0	5	1.0	0.2	99	0	6	0	7.4	1.4
SVA	112	0	4	2.1	0.5	122	0	6	1	8.3	1.2
SVV	24	4	13	3.8	2.4	25	0	16	0	12.5	4.9
SWR	169	0	2	1.8	-0.1	172	0	3	0	8.0	1.9
TAP	729	1	6	2.1	0.2	729	0	6	0	7.7	1.8
TEJ	85	0	16	2.0	0.2	87	0	17	0	8.3	-0.4
THA	260	1	2	1.6	-0.6	263	0	3	0	10.1	0.2
TOW	92	3	3	1.8	-0.7	96	0	2	0	8.7	1.1
TSC	210	3	13	3.2	0.4	218	0	6	0	9.6	0.8

IDENT.	N.REP.	TEMPERATURE				N.REP.	WIND				BIAS
		PG	PR	RMS	BIAS		PG	PR	PC	RMS	
TWA	1701	0	1	1.9	0.0	1699	0	2	0	7.9	1.1
UAL	52994	1	3	1.2	0.2	53068	0	2	0	6.5	0.6
UKR	26	27	58	4.6	3.5	26	0	46	0	18.3	6.4
ULE	216	3	1	1.7	0.5	209	0	2	0	7.5	1.7
UPS	820	1	10	1.7	-0.1	820	0	10	0	7.3	0.6
USA	245	0	2	1.8	0.2	244	0	2	0	6.8	0.7
VIA	494	1	3	1.8	1.1	494	0	4	2	5.9	0.8
VIR	123	2	1	2.3	0.1	129	0	1	0	7.9	1.9
VRB	29	3	7	2.5	2.2	30	0	0	0	6.7	0.2
VRG	61	3	2	1.5	0.9	59	0	0	0	6.7	0.7
VSP	52	0	2	2.3	0.1	53	0	4	0	8.8	1.0
WOA	248	0	4	1.9	0.8	254	0	6	1	6.9	0.7
AN	25119	0	1	1.2	0.1	24962	0	1	0	6.3	0.4
BA	27344	0	9	1.2	0.4	27257	0	9	0	6.6	1.1
DL	83773	0	3	1.0	0.0	83773	0	3	0	6.2	1.0
FJ	38	0	3	1.8	-0.1	38	0	3	0	9.3	-2.6
IT	68	0	0	1.0	-0.4	51	0	0	0	5.3	-1.1
KL	11396	0	6	1.1	0.3	11383	0	7	0	6.5	0.9
LH	3614	0	4	1.2	0.4	3593	0	4	0	6.0	0.9
NW	28332	0	2	1.3	0.2	28332	0	1	0	5.9	0.9
QF	7372	0	1	1.1	0.2	7351	0	1	0	6.7	0.6
SA	1622	0	1	1.2	0.7	1622	0	100	0	7.8	2.2
SV	1413	4	5	1.2	0.7	1401	0	5	0	7.1	1.0
N	439	2	4	2.5	0.5	462	0	3	0	8.7	0.9

MEAN DAILY COUNT OF AIRCRAFT 70 -- 500 HPA

JUNE 1996

OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

FIGURE 3

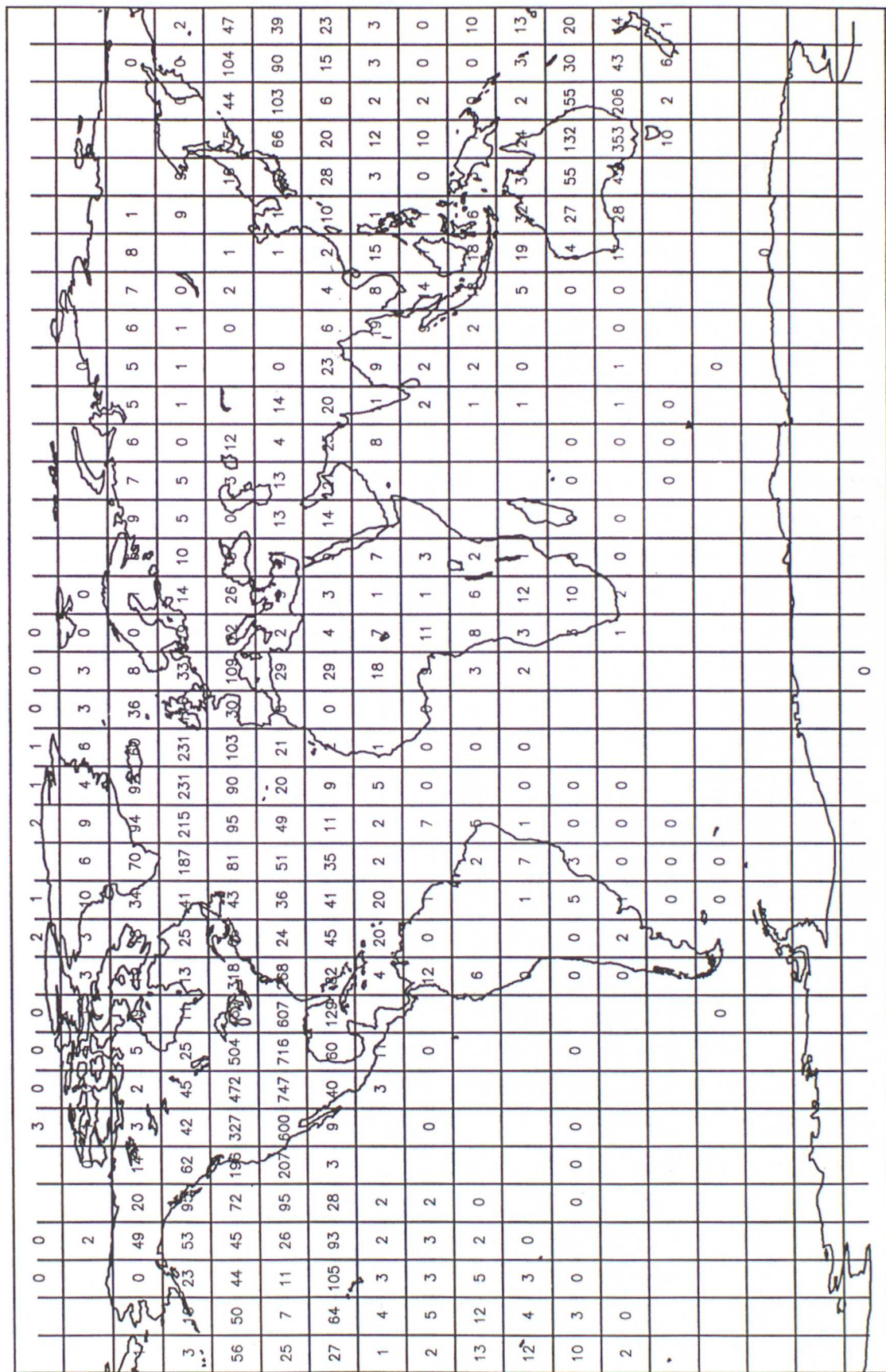


FIGURE 4

AIRCRAFT MEAN WINDS BETWEEN 70 AND 500 HPA

JUNE 1996

OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

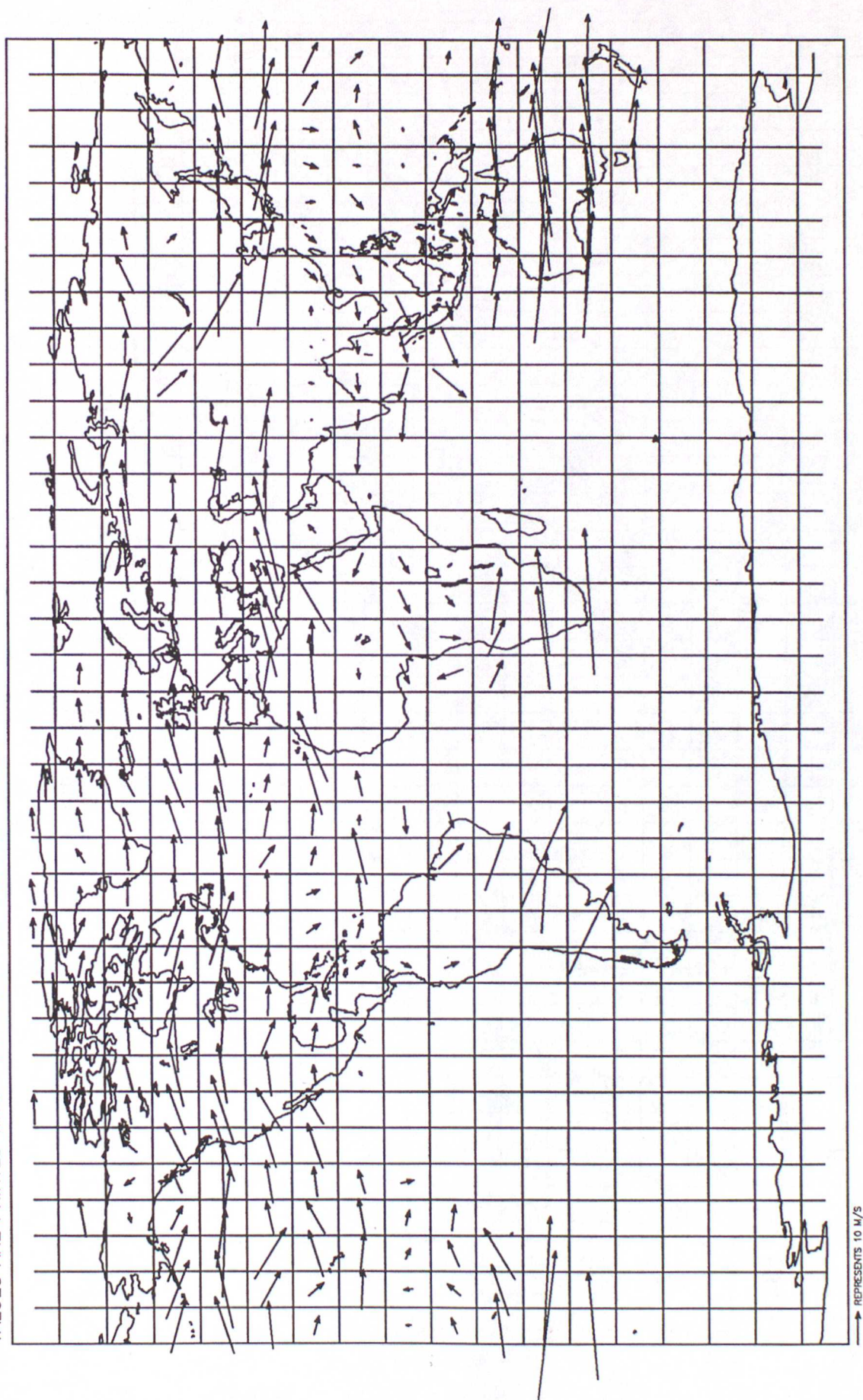
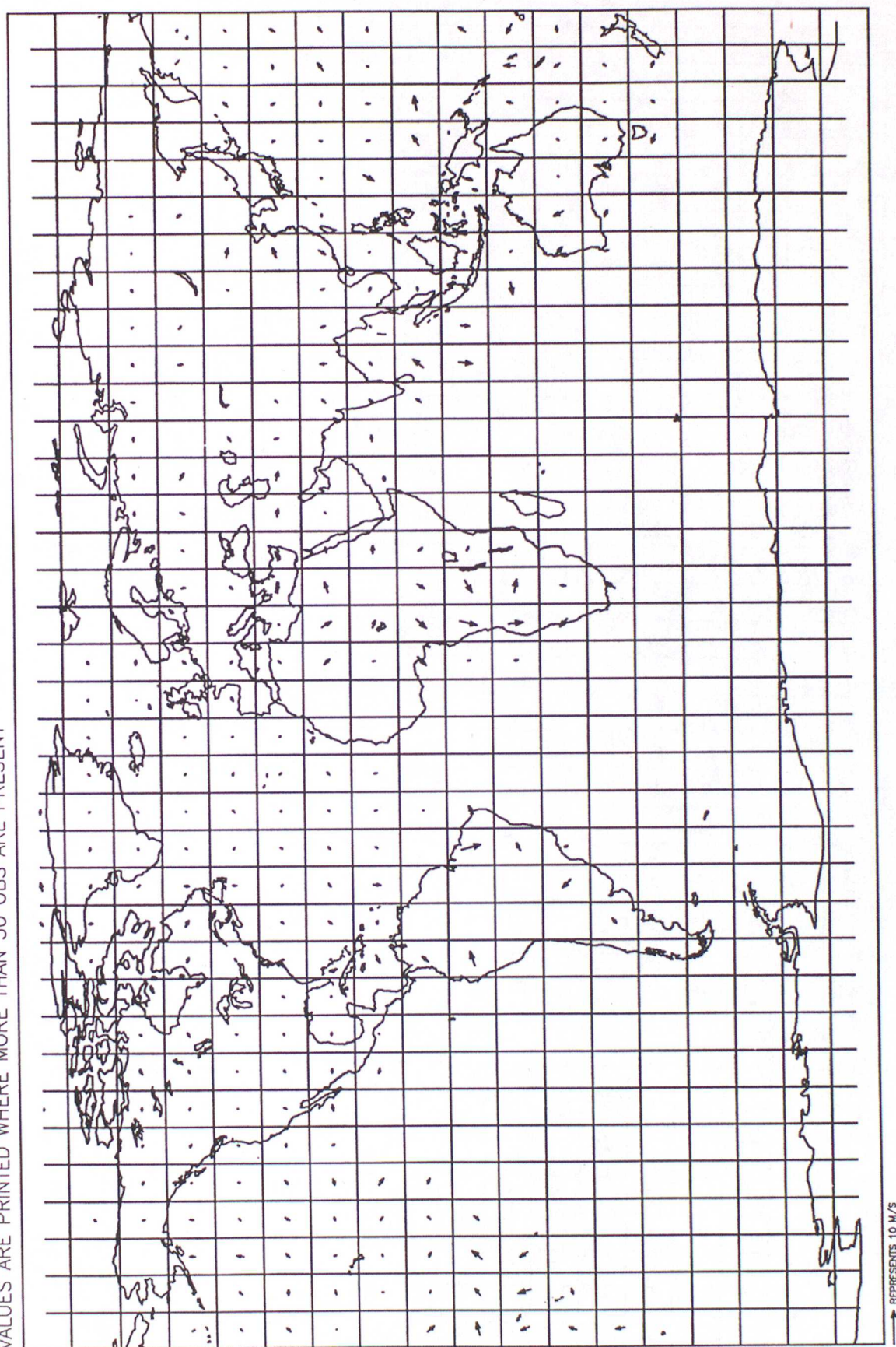


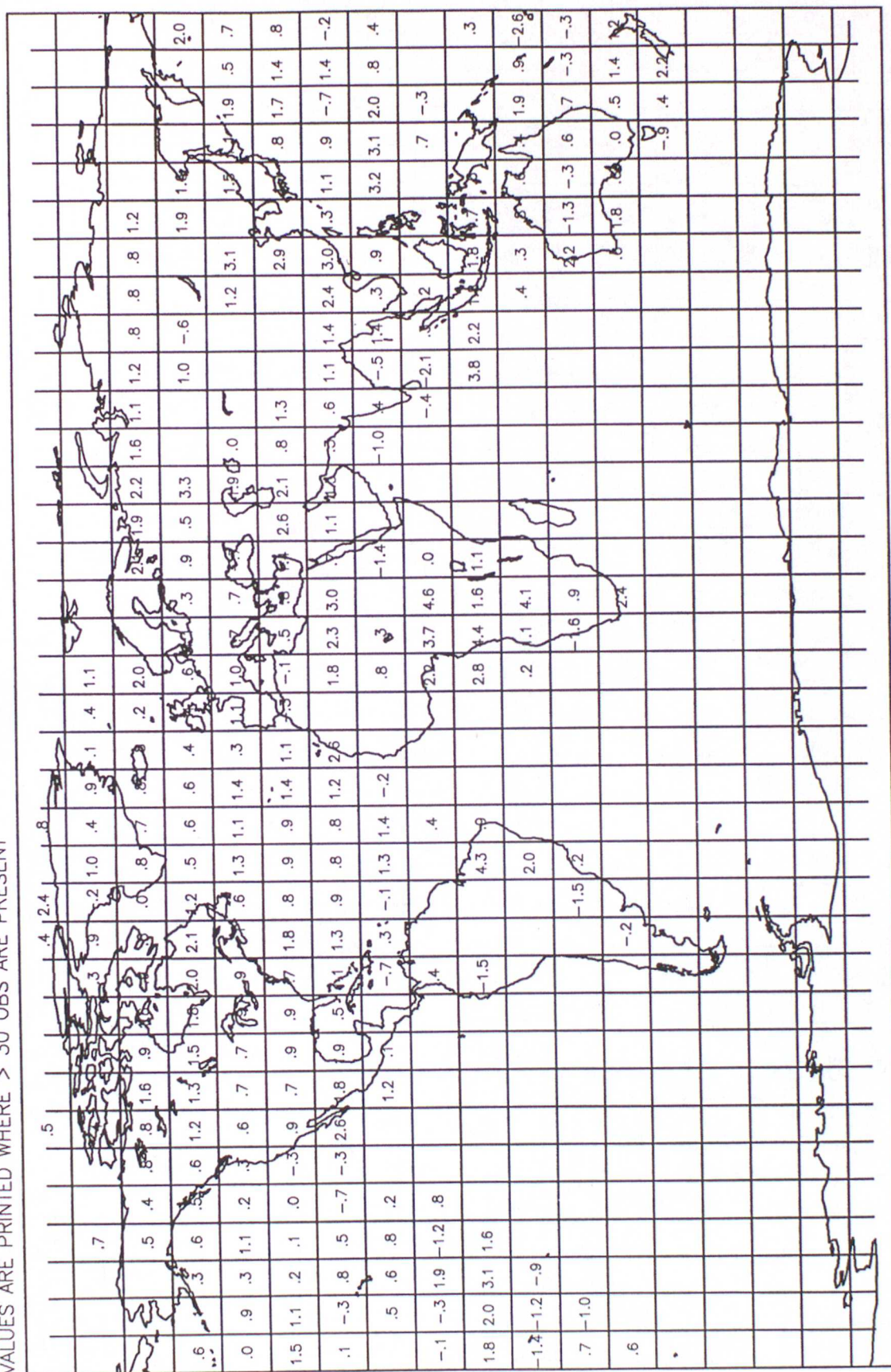
FIGURE 5

AIRCRAFT MEAN O-B WINDS BETWEEN 70 AND 500 HPA

JUNE 1996

OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



AIRCRAFT : M
JUNE 1996

AIRCRAFT : RMS O-B VECTOR (M/S) BETWEEN 70 AND 500 HPA

JUNE 1996

OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT

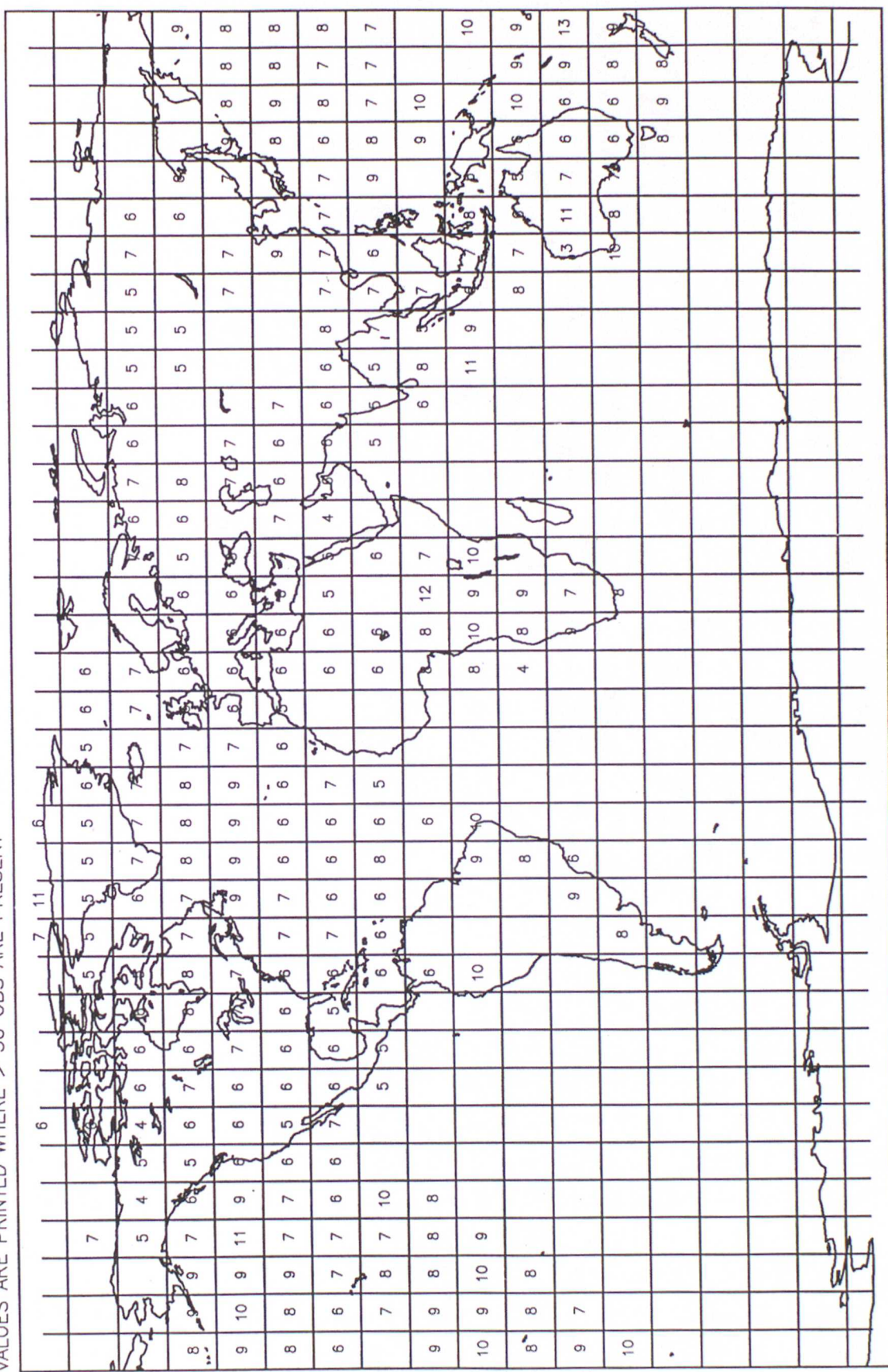


FIGURE 7

TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: June, 1996

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from each unique identifier for radiosonde TEMPs.
Area monitored	:90°N - 90°S, 180°W - 180°E.
Standard of comparison	:Background field from Bracknell global model.
Observation times	:00 UTC and 12 UTC.
Level(s) monitored	:Standard levels between 1000.0 - 30.0 hPa
Element monitored	:GEOPOTENTIAL HEIGHT IN metres
Parameters monitored	
:NUM OBS	:Number of observations available at level shown during period.
:NUM GROSS	:Number of gross errors at level shown during period.
:% REJ	:Percentage of observations rejected by quality control at level shown during period.
:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.1
SELECTION CRITERIA	: ≥3 levels with ≥10 observations and ≥ 100 m weighted RMS.

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG		NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
37018	12	Z	30	44/	39	17	0	37.5	221.5	224.7	8
41780	00	Z	850	25/	67	18	0	24.6	-29.5	38.4	4
41977	00	Z	400	22/	92	16	1	63.2	-54.2	83.2	9
42101	00	Z	700	30/	76	22	0	26.7	-37.5	46.0	9
42339	00	Z	150	26/	73	14	0	74.9	-121.4	142.7	6
42369	00	Z	70	27/	81	14	5	114.7	204.9	234.9	9
42369	12	Z	50	27/	81	9	3	88.0	285.8	299.0	9
42379	00	Z	100	27/	83	21	0	119.9	111.5	163.7	9
42379	12	Z	30	27/	83	14	0	213.1	103.4	236.9	10
42397	00	Z	150	27/	88	17	0	74.9	-54.0	92.3	4
42397	12	Z	200	27/	88	20	0	77.5	-78.5	110.3	9
42492	00	Z	50	26/	85	14	4	125.7	68.9	143.4	7
42492	12	Z	200	26/	85	18	0	104.3	46.2	114.1	9
42647	12	Z	50	23/	73	10	0	67.1	173.2	185.7	4
42724	12	Z	200	24/	91	15	0	86.1	35.8	93.2	6
42867	12	Z	70	21/	79	14	0	95.4	114.1	148.8	4
42971	00	Z	400	20/	86	18	2	62.3	-23.4	66.6	4
43041	12	Z	100	19/	82	9	1	149.2	-23.7	151.1	7
43128	12	Z	150	17/	78	13	0	111.4	13.2	112.2	5
43185	12	Z	70	16/	81	15	0	126.0	116.5	171.6	4
43192	00	Z	250	15/	74	23	1	68.9	-68.3	97.1	6
43192	12	Z	150	15/	74	14	1	137.5	15.1	138.3	6
43279	00	Z	150	13/	80	24	0	103.8	-84.4	133.8	9
43279	12	Z	150	13/	80	23	0	83.5	-61.8	103.9	8
43311	00	Z	400	11/	73	13	1	37.7	-68.2	78.0	6
43346	12	Z	150	11/	80	26	0	101.0	24.7	103.9	7
43353	00	Z	100	10/	76	11	0	83.1	-137.4	160.6	7
43369	00	Z	100	8/	73	14	1	90.1	-108.0	140.6	5
43371	00	Z	70	8/	77	12	1	56.5	-175.8	184.7	4
43371	12	Z	50	8/	77	17	0	155.8	-97.5	183.8	5
47158	00	Z	30	35/	127	23	0	104.3	177.2	205.6	4
48568	00	Z	70	7/	101	22	0	65.7	163.4	176.1	4
50527	00	Z	50	49/	120	27	0	91.4	127.0	156.5	4
50527	12	Z	50	49/	120	27	1	74.1	158.7	175.1	7
52323	12	Z	100	42/	97	26	0	32.6	105.0	110.0	4
52836	00	Z	100	36/	98	22	0	64.6	122.3	138.3	4
52836	12	Z	100	36/	98	23	0	56.7	105.9	120.1	4
54135	12	Z	70	44/	122	29	0	74.7	110.2	133.1	4
54161	00	Z	30	44/	125	21	0	62.1	160.1	171.7	5
54662	00	Z	100	39/	122	17	0	38.5	105.7	112.5	4
56294	12	Z	30	31/	104	14	0	40.7	186.4	190.8	5
56739	12	Z	100	25/	98	29	0	47.7	113.8	123.4	4
56985	12	Z	100	23/	103	28	0	34.3	141.5	145.6	5
57516	00	Z	70	30/	106	22	0	69.7	188.3	200.8	6
57516	12	Z	70	30/	106	20	0	53.3	175.3	183.3	6
58847	00	Z	100	26/	119	23	0	42.0	116.3	123.6	4
61998	12	Z	300	-49/	70	27	0	37.8	59.5	70.5	4
62306	00	Z	150	31/	27	28	0	89.2	46.0	100.3	4
62306	12	Z	30	31/	27	3	15	8.3	411.3	411.4	10
76394	00	Z	30	26/-	100	27	0	33.3	181.2	184.2	5
85934	12	Z	300	-53/	-71	26	0	50.3	71.1	87.1	4
89009	00	Z	300	-90/	0	20	0	72.3	16.8	74.2	4
89050	00	Z	300	-62/	-59	27	0	60.4	58.7	84.3	5
89642	00	Z	850	-67/	140	25	1	35.1	-9.3	36.3	5
96163	00	Z	100	-1/	100	13	0	136.7	-4.0	136.8	6
96237	00	Z	100	-2/	106	11	0	136.6	31.0	140.1	5

FIGURE 8

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS - 1320

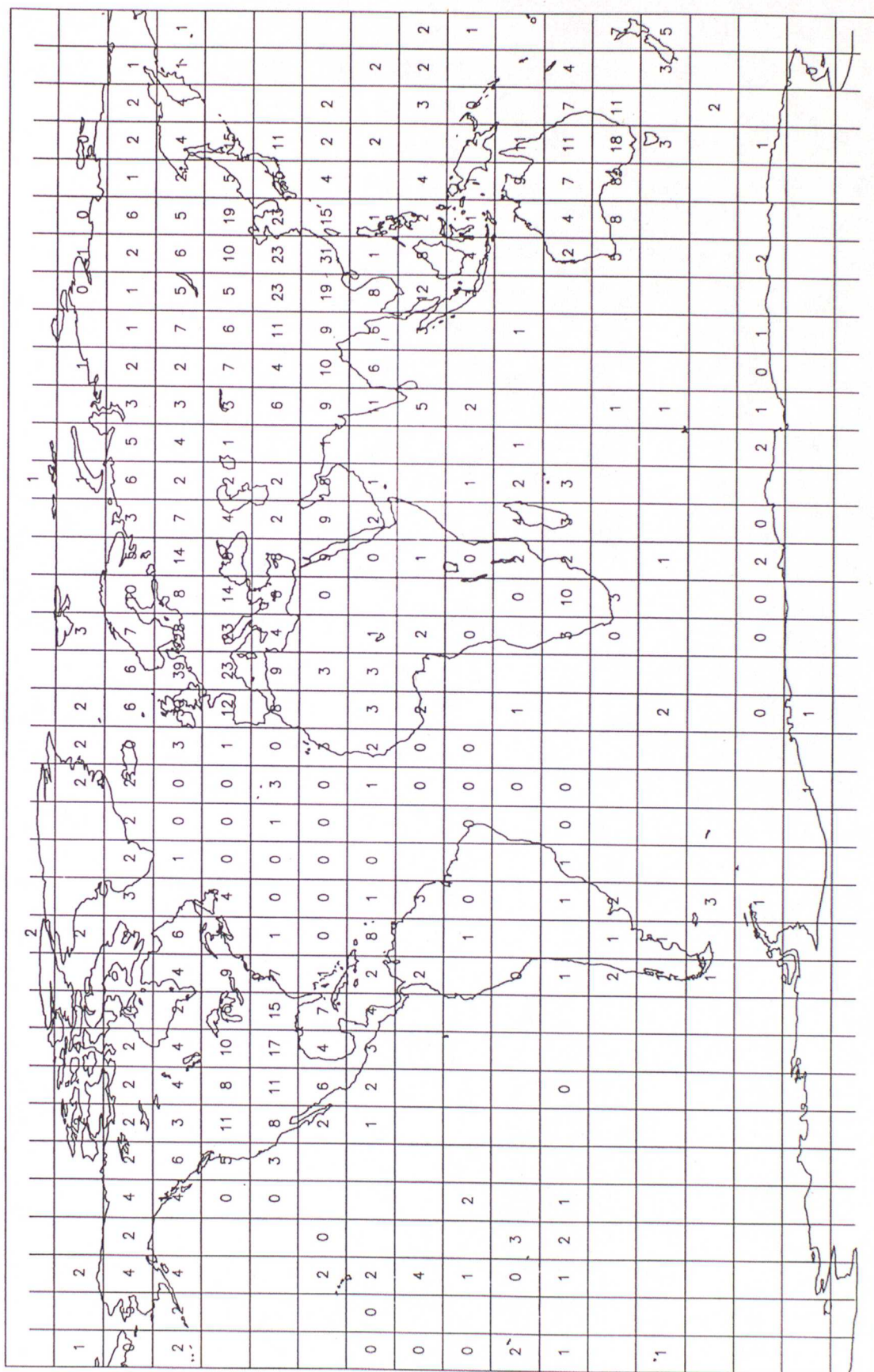


TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: June, 1996

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from each unique identifier for radiosonde TEMPs.
Area monitored	:90°N - 90°S, 180°W - 180°E.
Standard of comparison	:Background field from Bracknell global model.
Observation times	:00 UTC and 12 UTC.
Level(s) monitored	:Standard levels between 1000.0 - 100.0 hPa
Element monitored	:VECTOR WIND in m s^{-1}
Parameters monitored	
:NUM OBS	:Number of observations available at level shown during period.
:NUM GROSS	:Number of gross errors at level shown during period.
:% REJ	:Percentage of observations rejected by quality control at level shown during period.
:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.2
SELECTION CRITERIA	: ≥ 10 observations and $\geq 15 \text{ m s}^{-1}$ RMS vector wind.

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
41780	00	V	500	25/ 67	17	1	22	10.6	1.2	15.3	1
42101	12	V	300	30/ 76	16	0	6	5.7	-3.3	15.1	1
60571	12	V	250	32/ -2	15	0	13	7.8	-2.1	17.6	1
68240	12	V	150	-24/ 26	15	0	13	-8.9	1.3	16.3	1
68461	00	V	200	-28/ 28	28	0	14	-12.6	6.6	18.1	1

FIGURE 9

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS - 1190

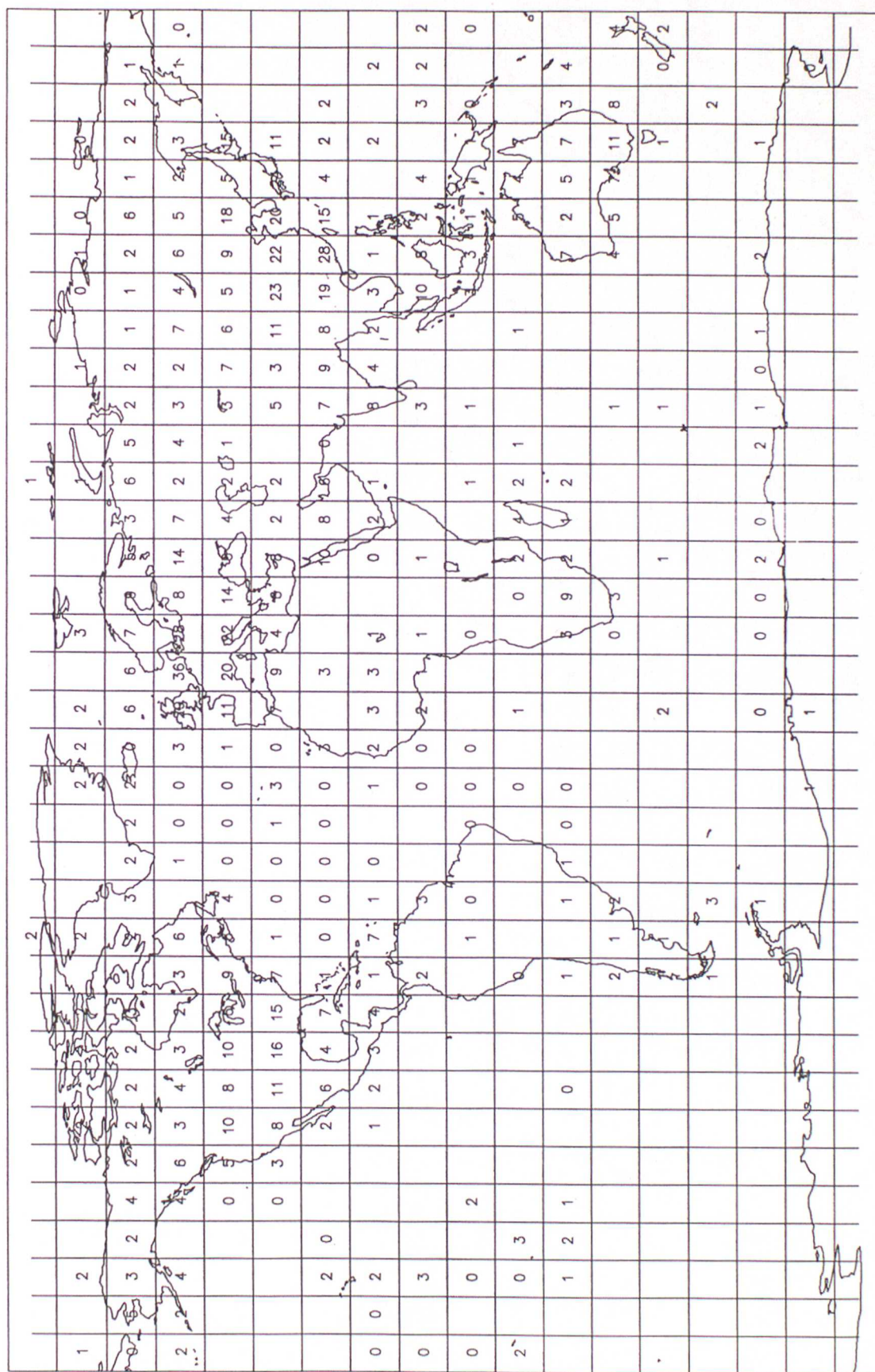


TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: June, 1996

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from each unique identifier for radiosonde TEMPs.
Area monitored	:90°N - 90°S, 180°W - 180°E.
Standard of comparison	:Background field from Bracknell global model.
Observation times	:00 UTC and 12 UTC.
Level(s) monitored	:Standard levels between 500.0 - 150.0 hPa
Element monitored	:WIND DIRECTION in degrees
Parameters monitored	
	:NUM OBS :Average number of observations at all levels.
	:BIAS :Mean difference of observations from background values from all levels.
	:MAX SPREAD : (For observation - background values) Maximum absolute difference of SD at any level from SD at all levels
	:SD :SD of difference of observations from background values at all levels.
SELECTION CRITERIA	:NUM OBS ≥ 5 , and ABSOLUTE BIAS $\geq 10^\circ$, with SD $< 30^\circ$, and MAX SPREAD $< 10^\circ$

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
16144	12	DD	45/ 12	18	27.5	3.3	23.0
17280	00	DD	38/ 40	7	-13.5	1.5	5.9
17280	12	DD	38/ 40	21	-10.8	6.2	10.8
17351	00	DD	37/ 35	7	-11.6	9.5	12.7
30554	00	DD	54/ 114	21	-11.2	5.6	20.3
30758	00	DD	52/ 113	13	-12.7	9.3	22.6
42369	12	DD	27/ 81	10	-13.0	9.3	23.5
43295	12	DD	13/ 78	11	16.1	7.4	20.7
44288	00	DD	46/ 103	8	39.8	4.2	14.0
53614	00	DD	38/ 106	26	-11.5	7.5	13.9
55591	00	DD	30/ 91	15	-12.5	9.7	22.7
55591	12	DD	30/ 91	16	-25.3	5.4	26.3
67083	00	DD	-19/ 47	23	18.3	9.1	20.1
67083	12	DD	-19/ 47	22	17.0	5.5	15.4
97560	12	DD	-1/ 136	9	12.2	9.6	29.7

MONITORING OF SATELLITE WINDS

MONITORING CENTRE: BRACKNELL

MONTH: June, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from GOES, METEOSAT, GMS, INSAT.

Standard of comparison :Background field from Bracknell global model.

Selection Criteria :number of observations > 10.

Data Extracted :Layer 701 - 1000 hPa
401 - 700 hPa
101 - 400 hPa

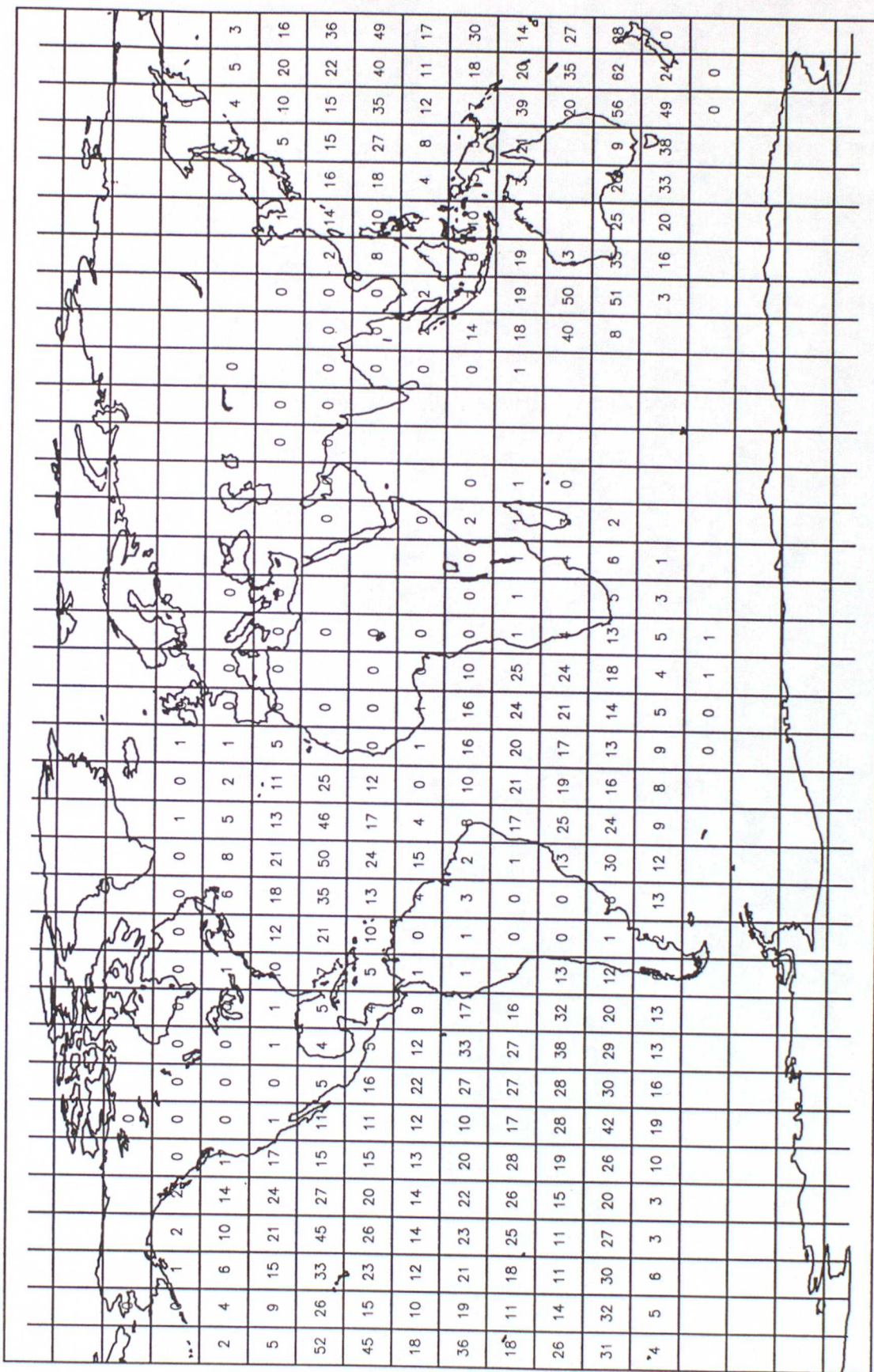
:Mean wind

:Mean observation minus background vector wind differences

:Mean observation minus background speed differences

:RMS of observation minus background vector differences

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
JUNE 1996



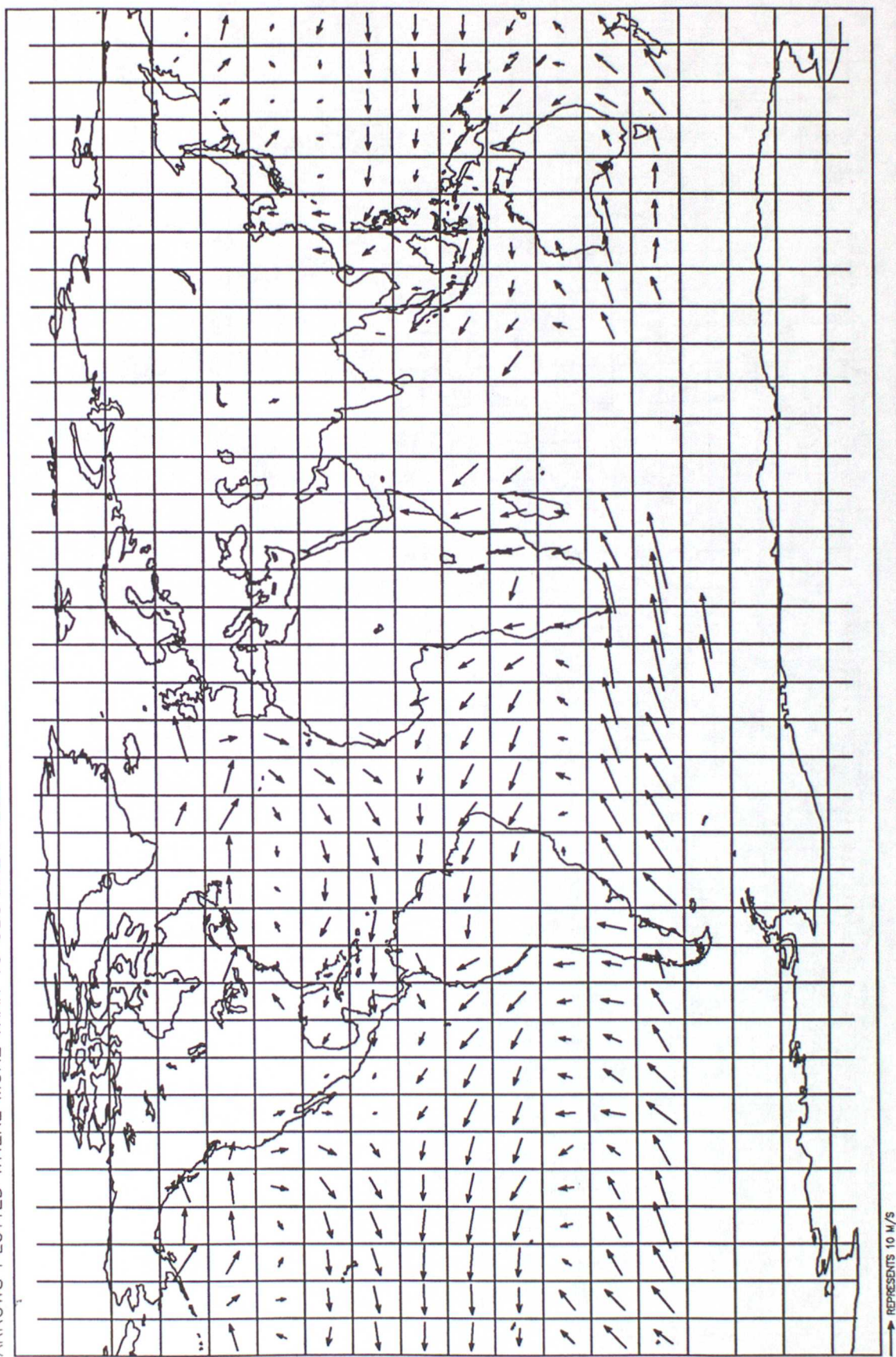
SATOB VECTOR MEAN WINDS BETWEEN 701-1000 HPA

JUNE 1996

ALL OBSERVATIONS

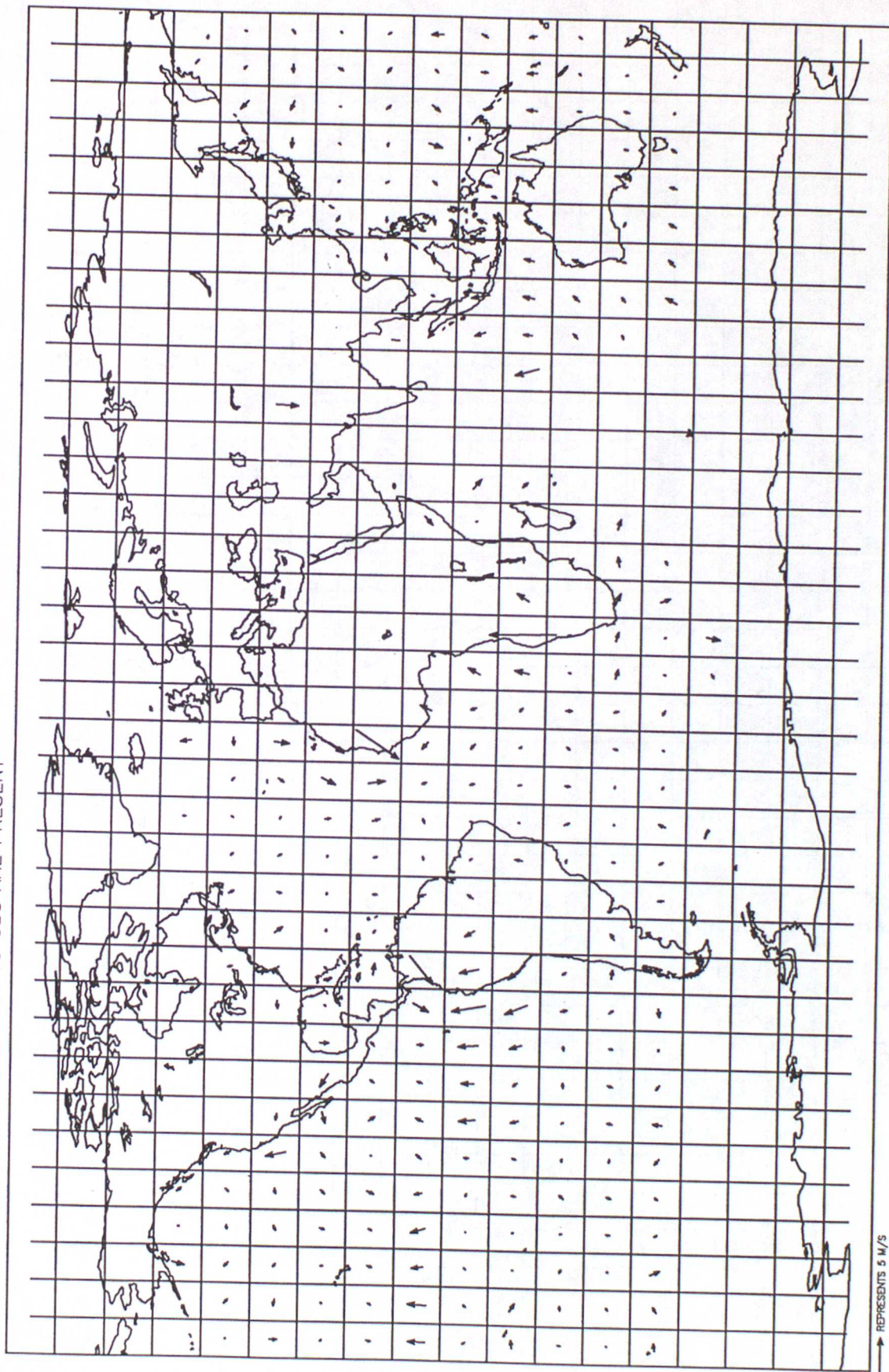
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 11

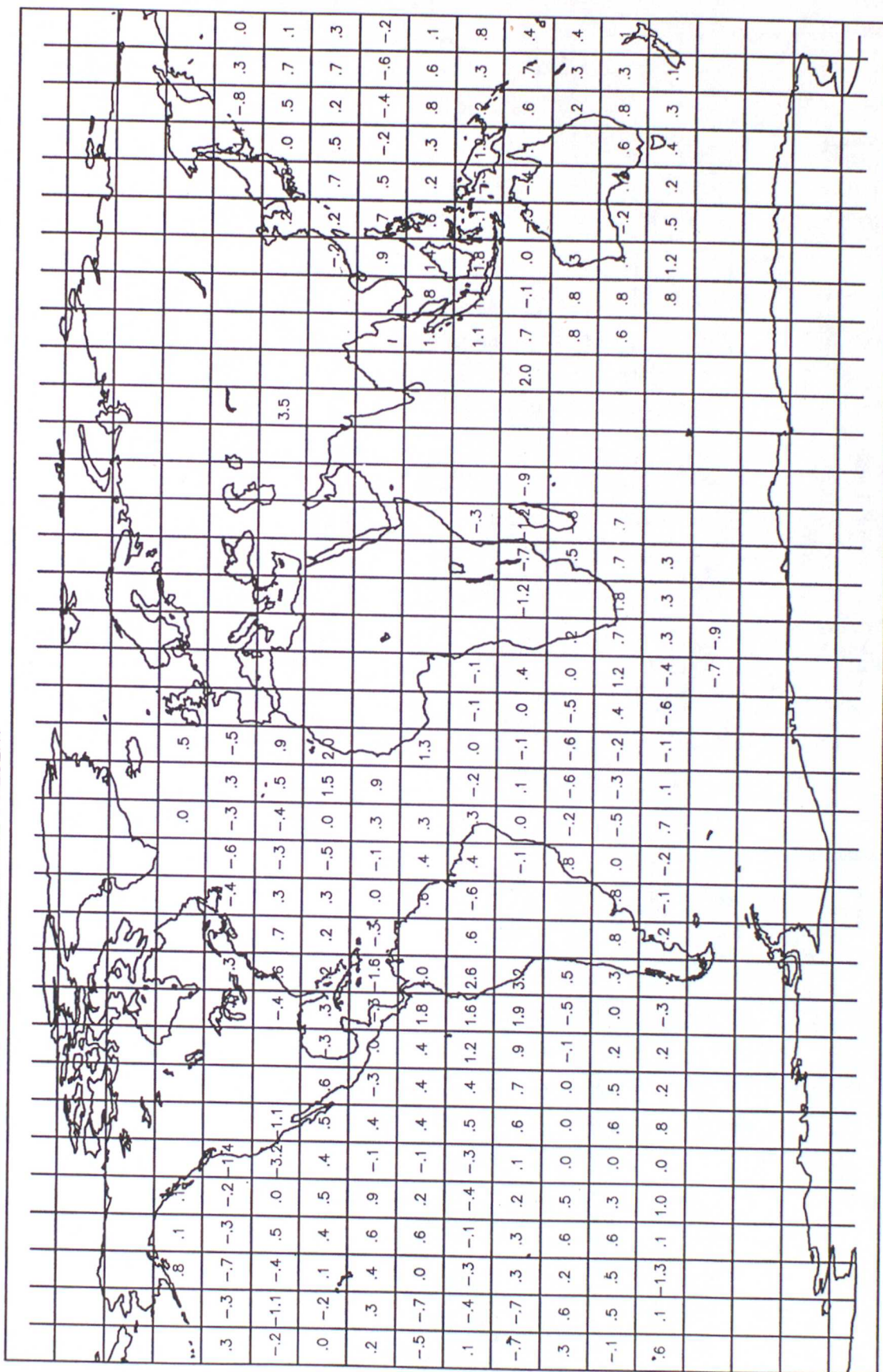


SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 701-1000 HPA
JUNE 1996
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

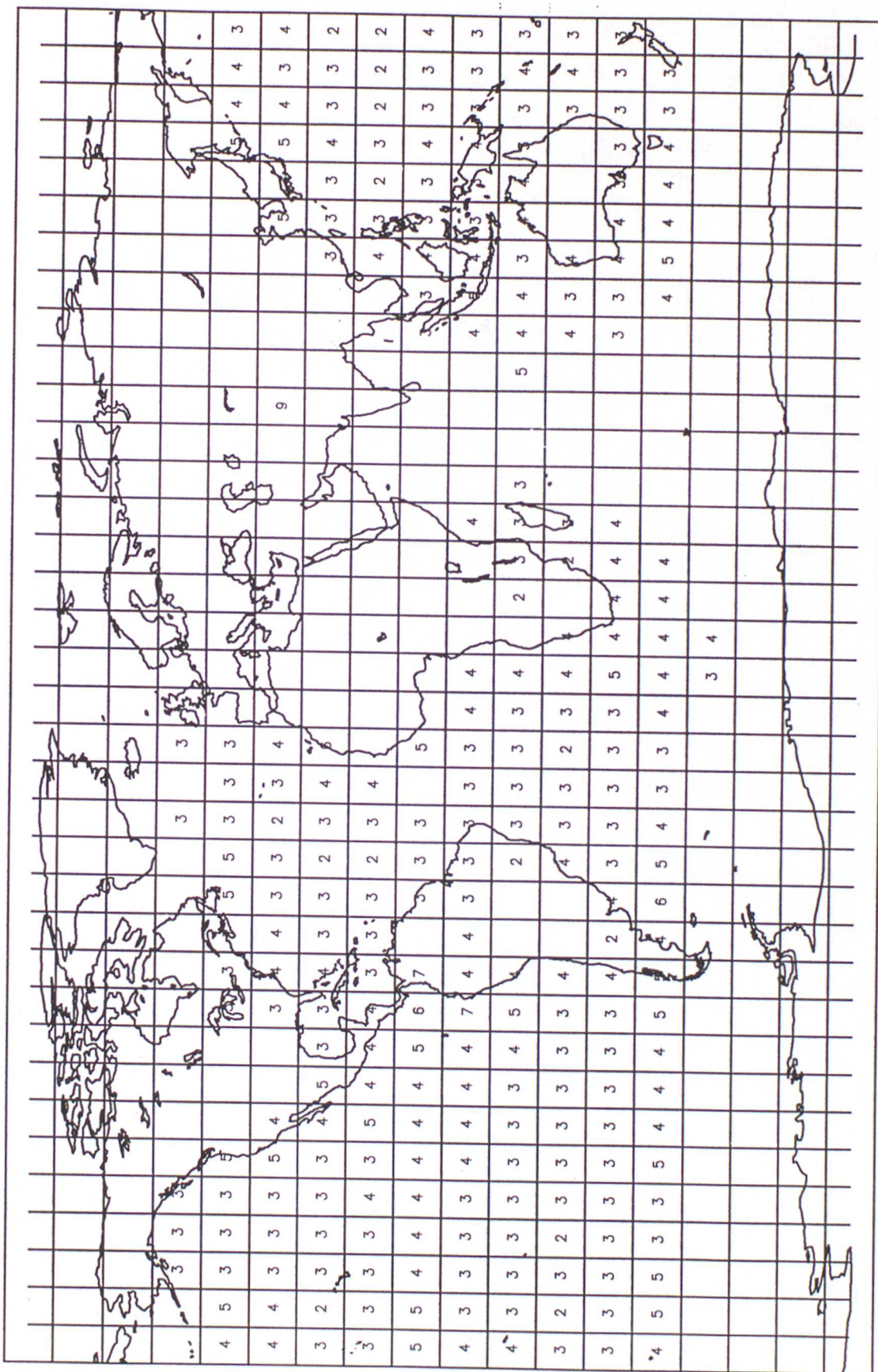
FIGURE 12



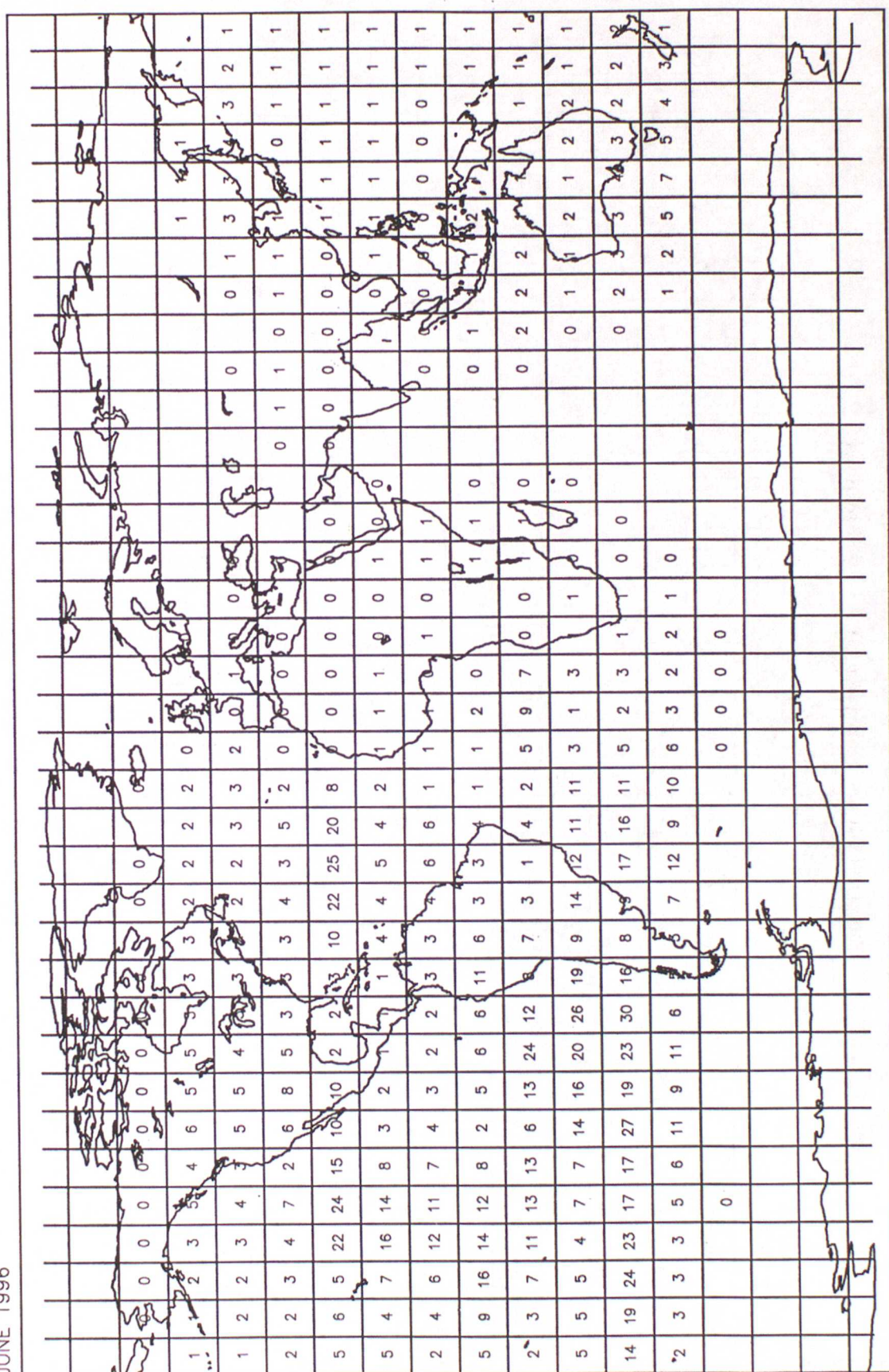
SATOB5 : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA
JUNE 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



SATOB5 : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA
JUNE 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 401 AND 700 HPA FIGURE 15
JUNE 1996



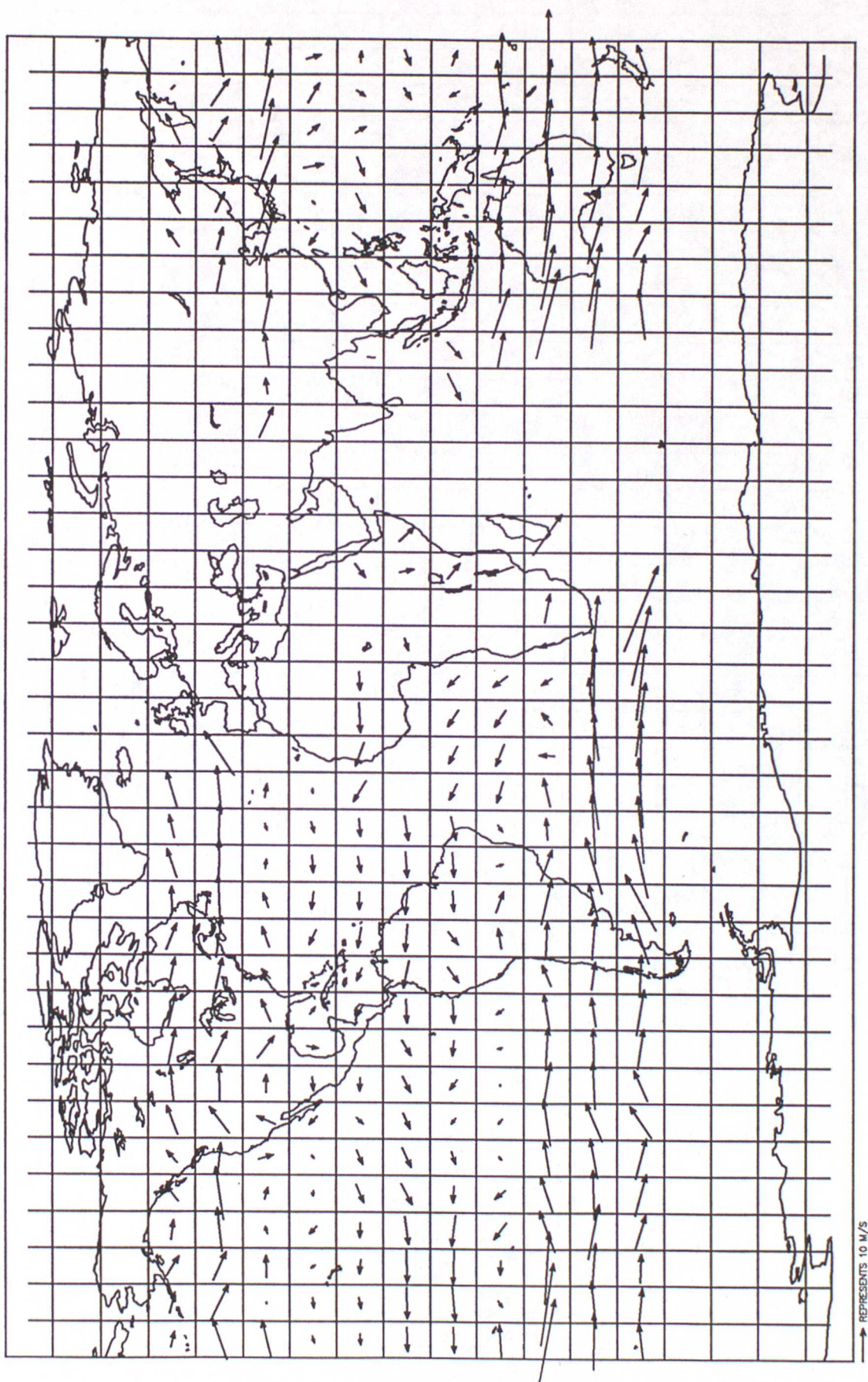
SATOB VECTOR MEAN WINDS BETWEEN 401-700 HPA

JUNE 1996

ALL OBSERVATIONS

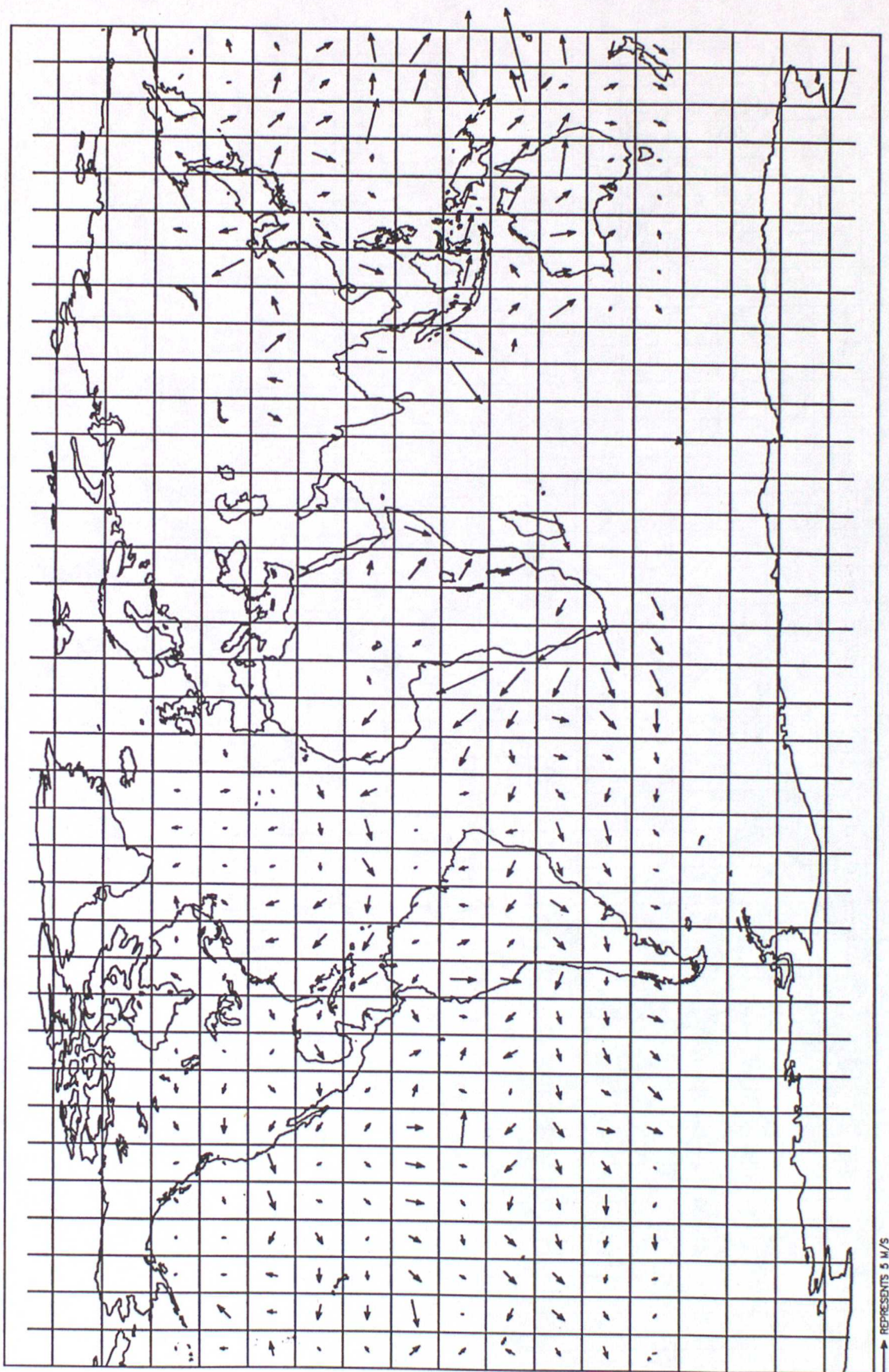
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 16

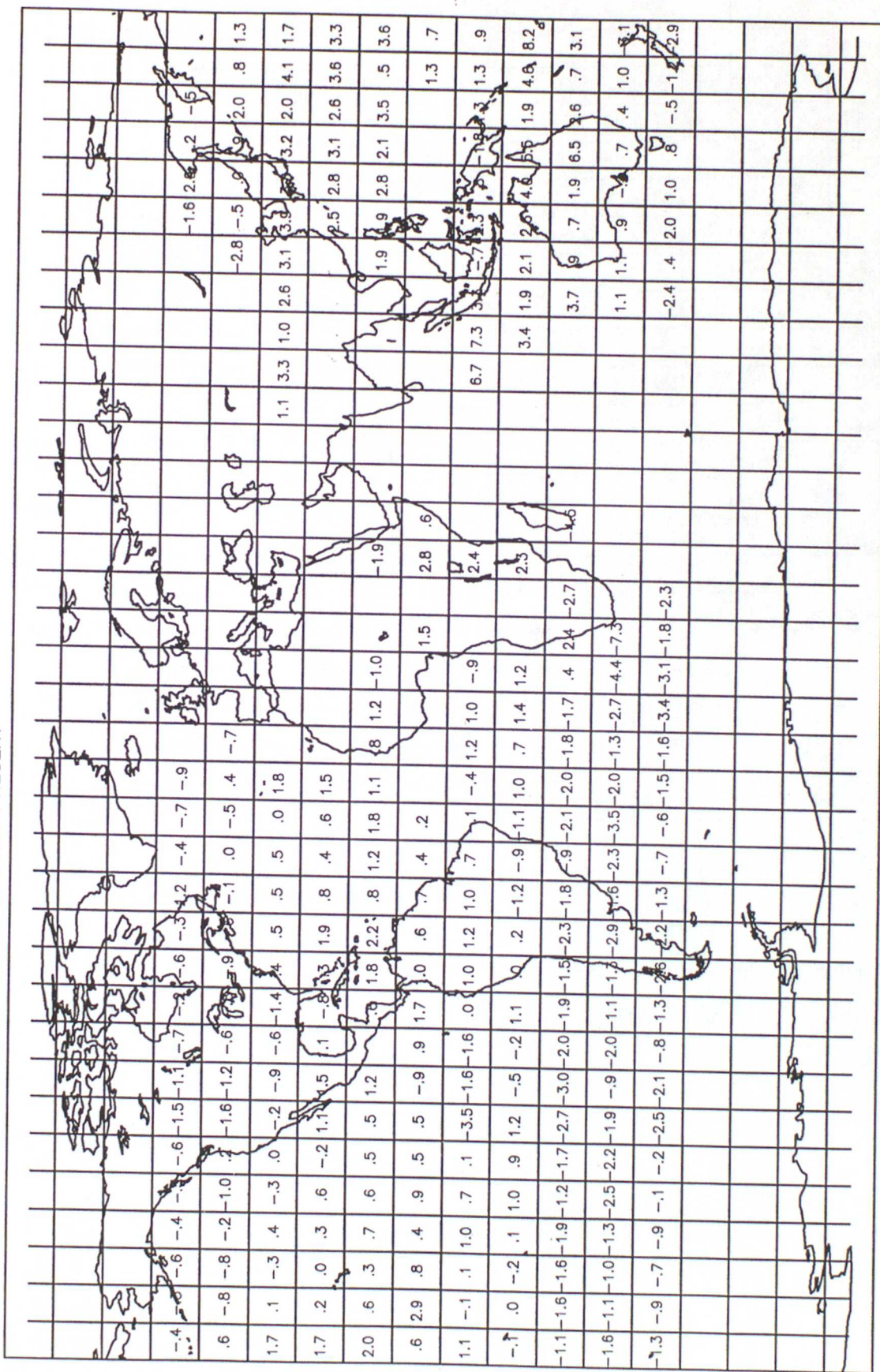


SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 401-700 HPA
JUNE 1996
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

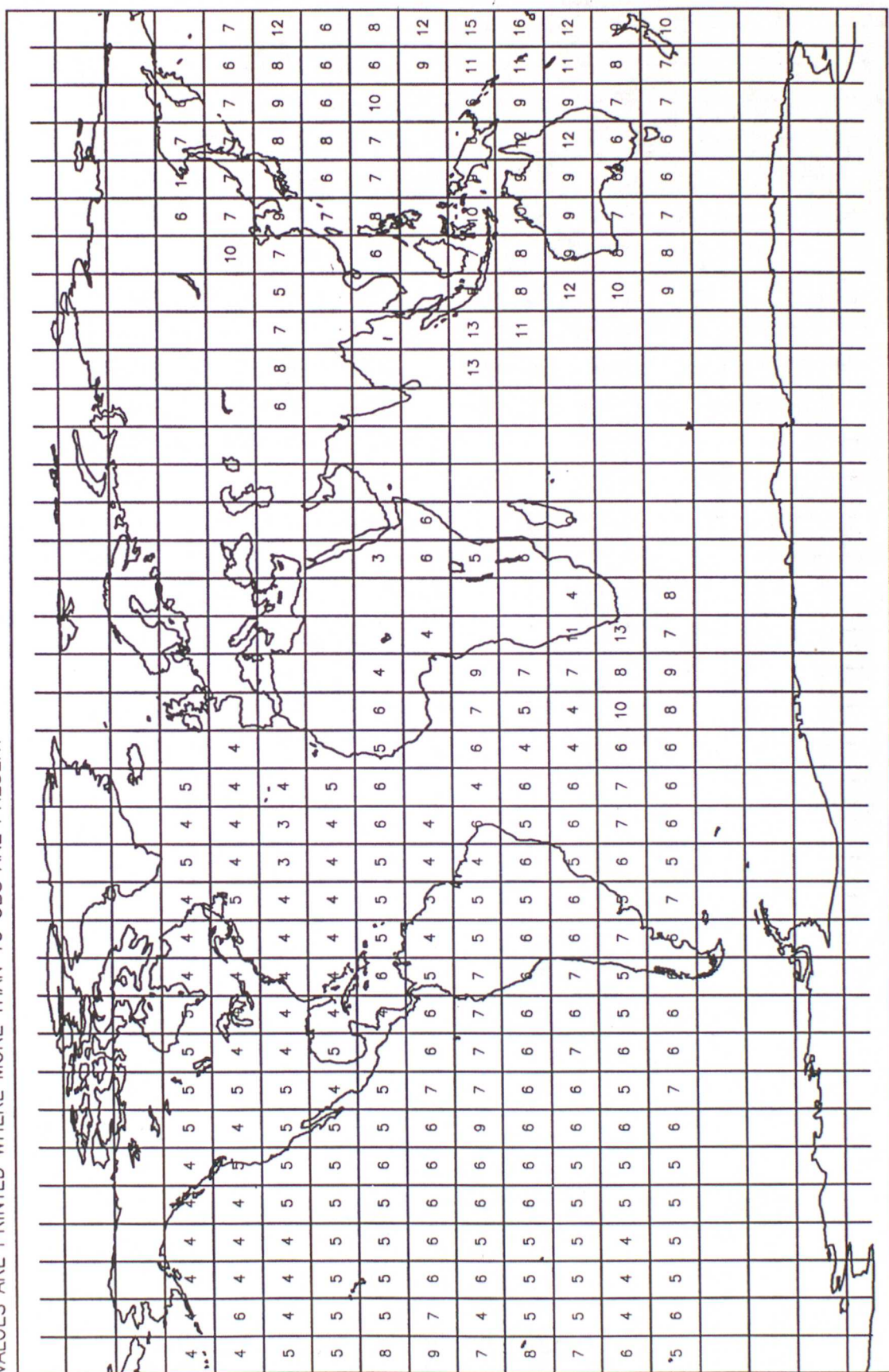
FIGURE 17



SATOB5 : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA
JUNE 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



SATOB5 : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA
JUNE 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
JUNE 1996

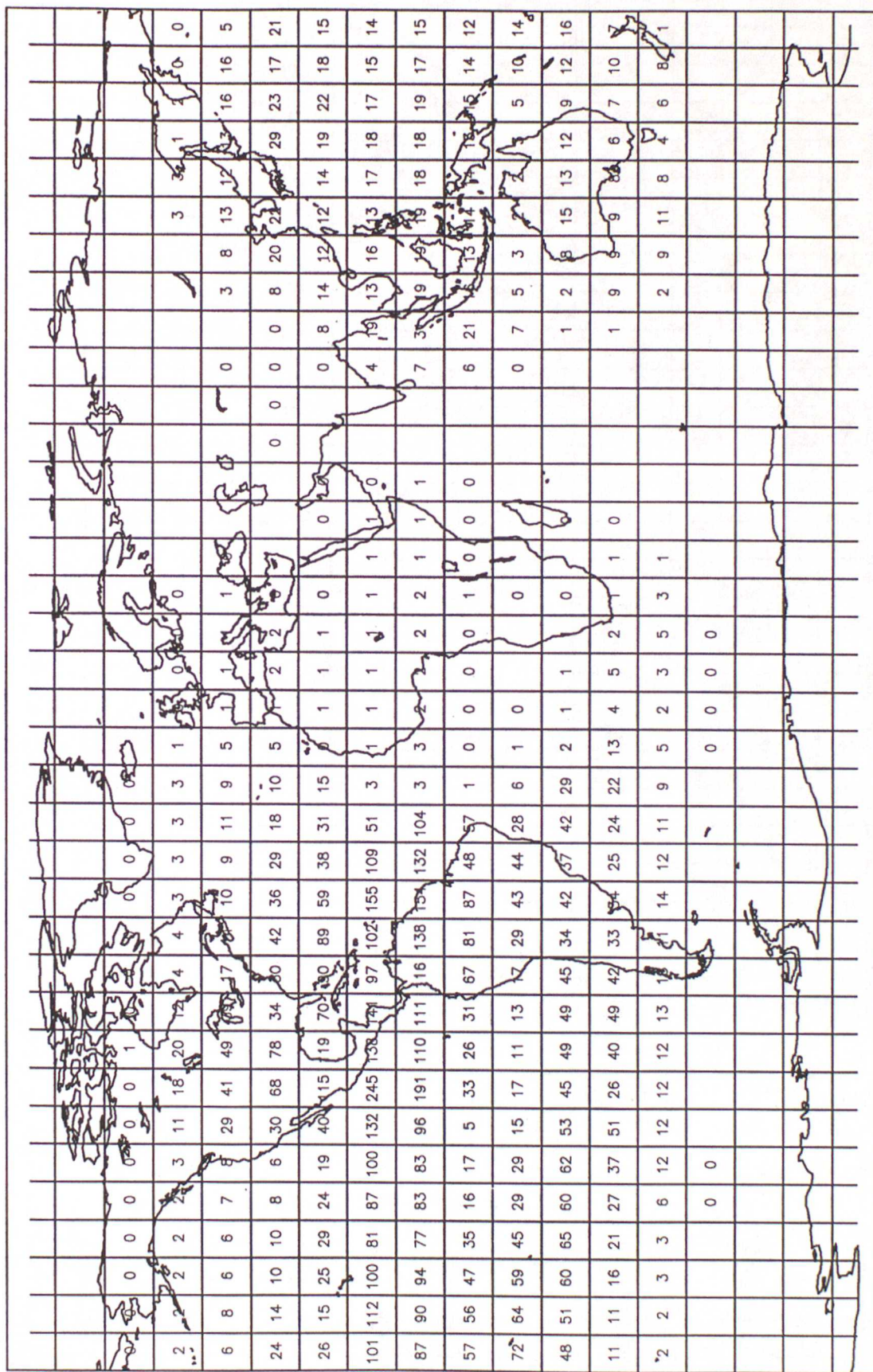


FIGURE 21

SATOB VECTOR MEAN WINDS BETWEEN 101-400 HPA

JUNE 1996

ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

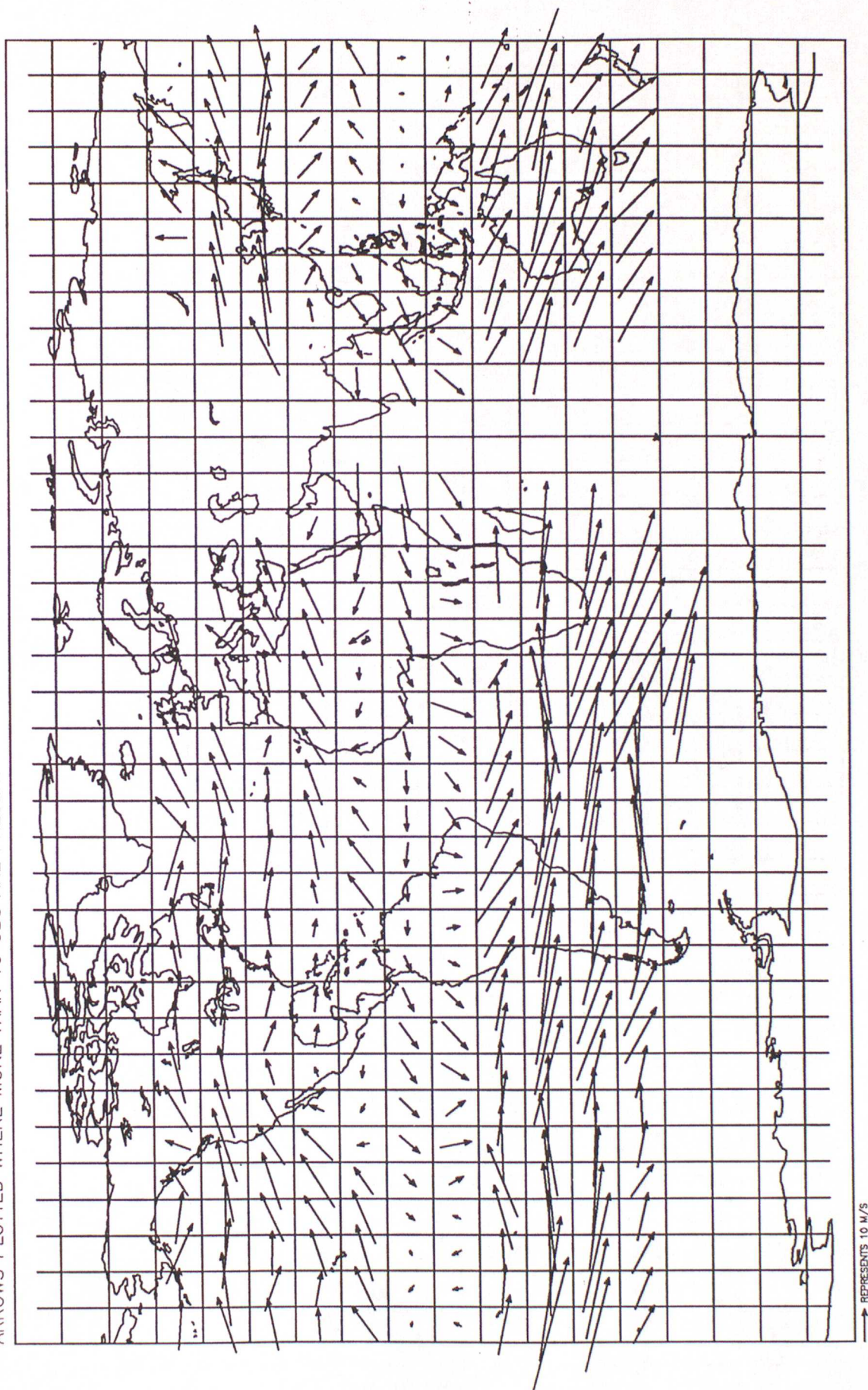


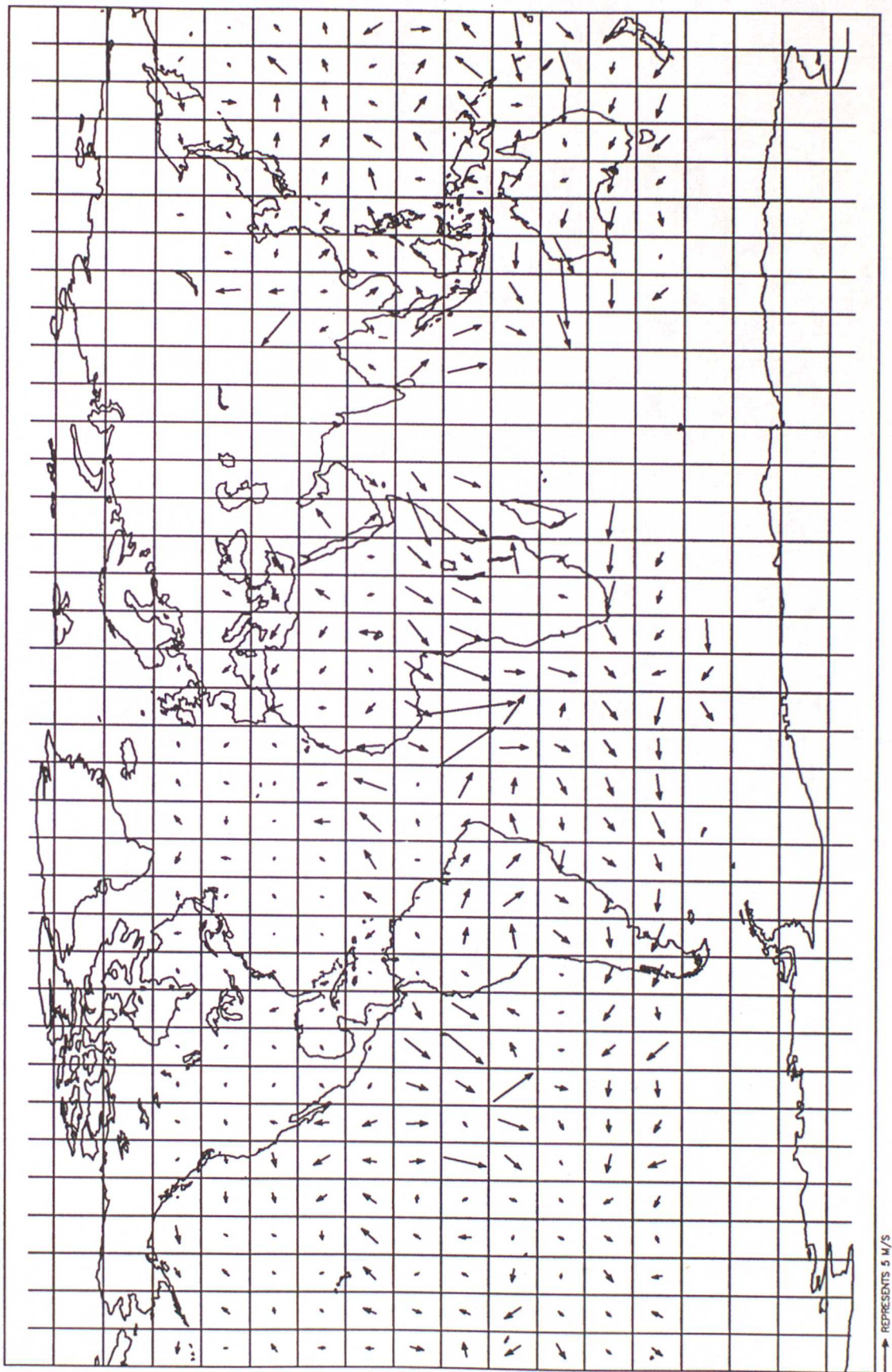
FIGURE 22

SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 101-400 HPa

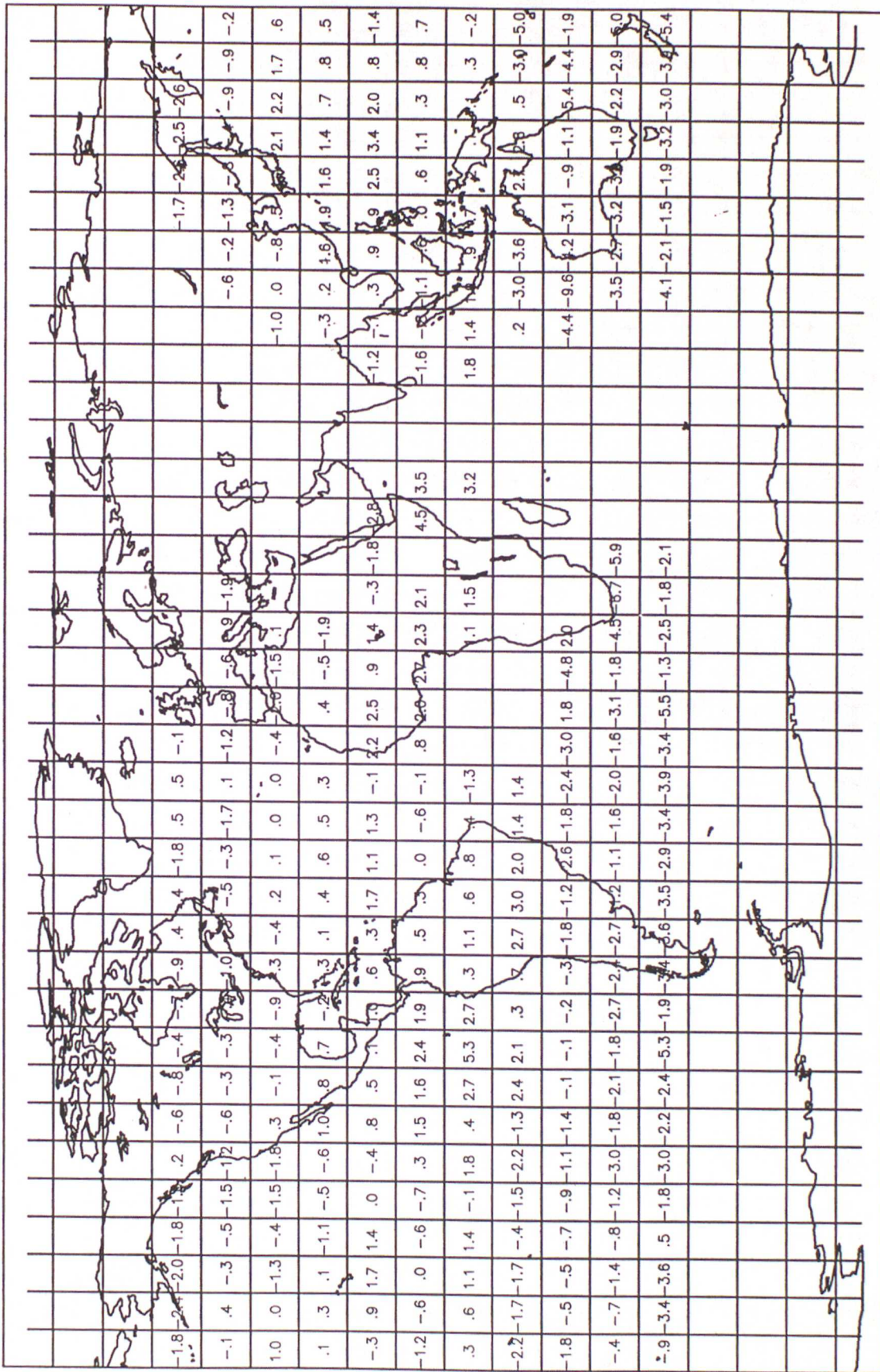
JUNE 1996

ALL OBSERVATIONS

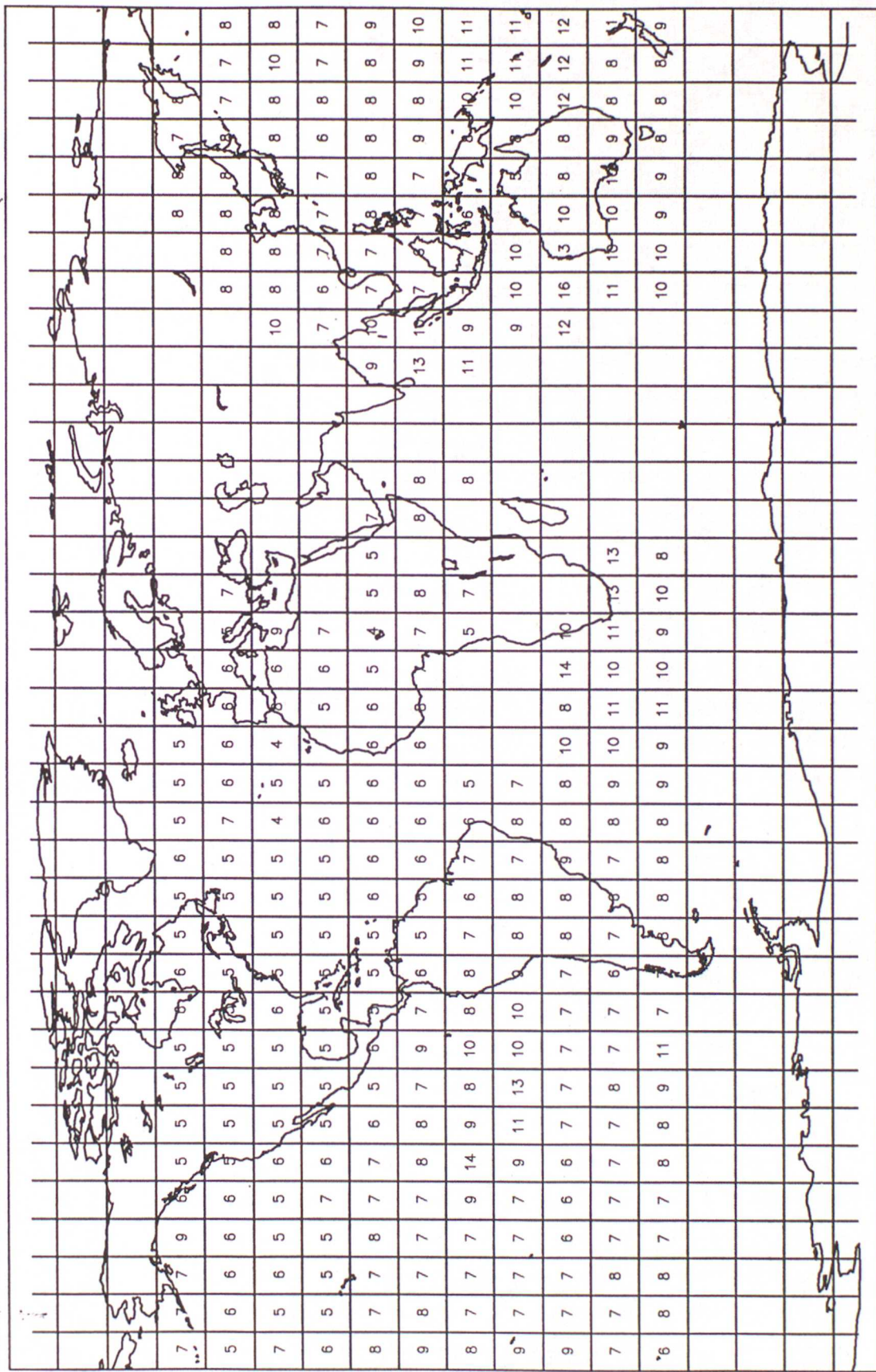
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT



SATOB : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 23
 JUNE 1996
 USING ALL OBSERVATIONS
 VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



SATOB5 : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA
JUNE 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



MONITORING OF SATELLITE TEMPERATURES

MONITORING CENTRE: BRACKNELL

MONTH: June, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from NOAA-12, NOAA-14 500 km.

Standard of comparison :Background field from Bracknell global model.

Selection Criteria :All SATEM soundings where number of observations > 30.

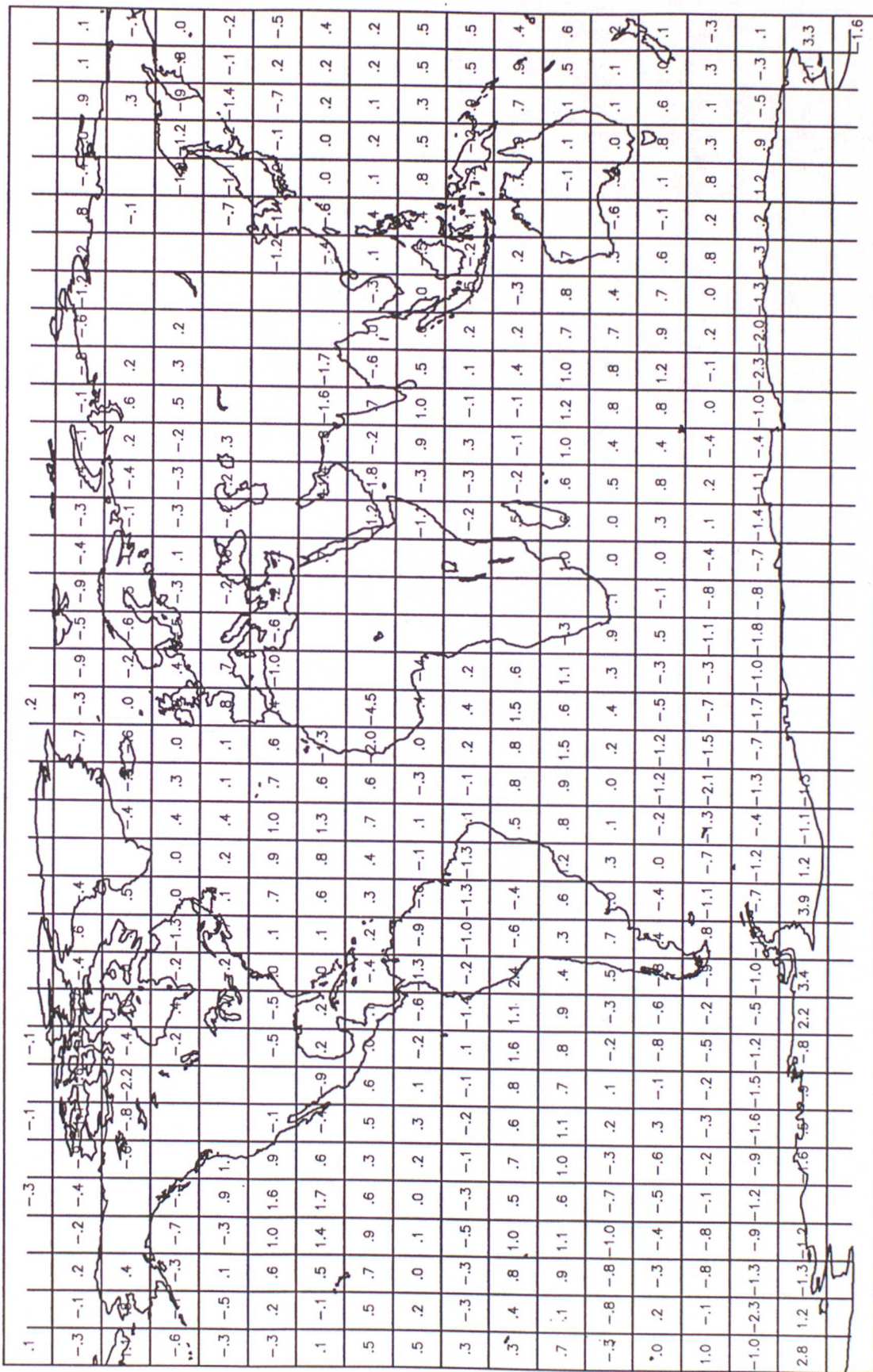
Data Extracted :Layer: 850 - 1000 hPa
100 - 300 hPa
30 - 50 hPa

:Mean observation minus background temperature differences

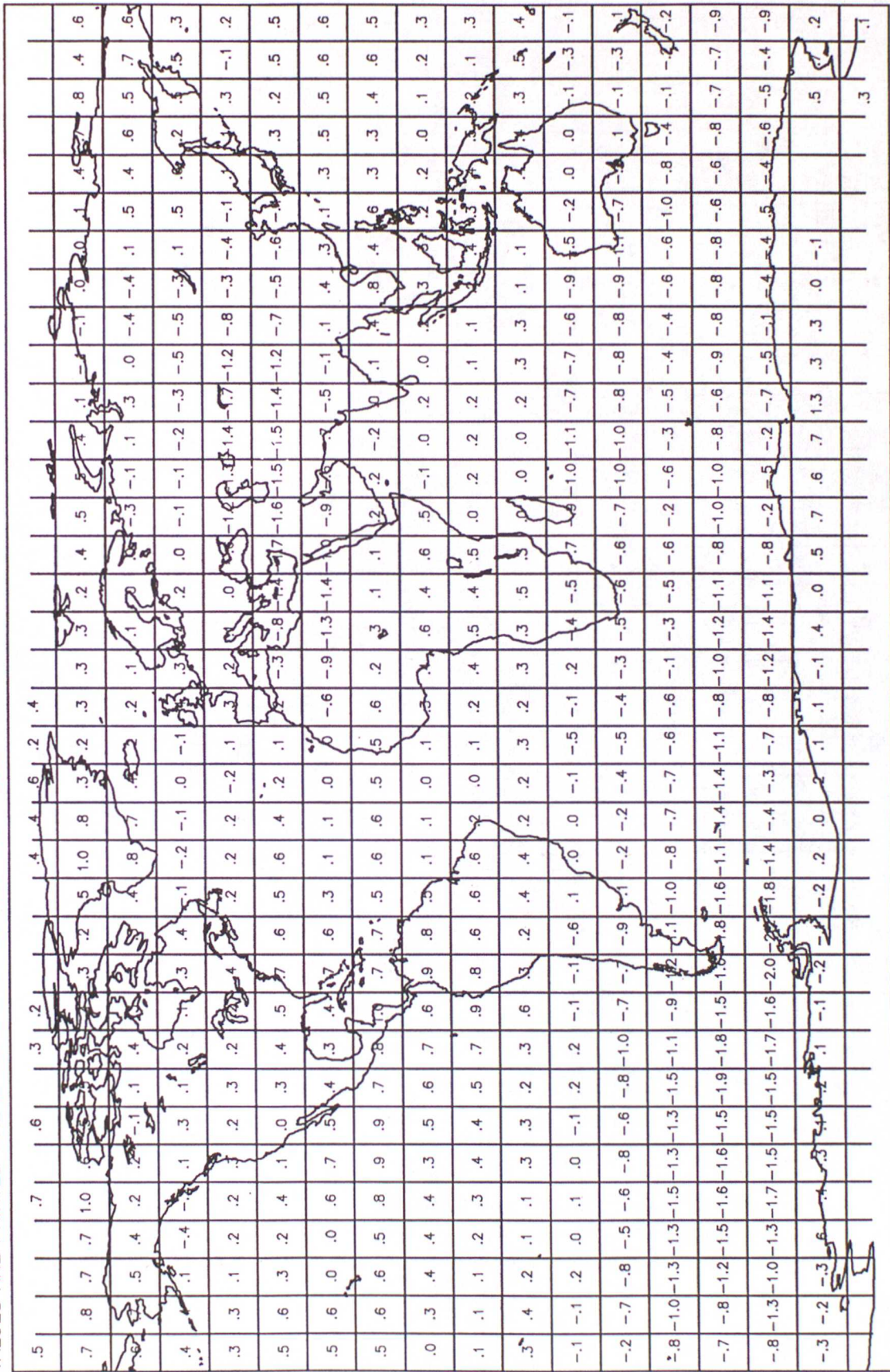
500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
 JUNE 1996

NOAA-12, USING ALL OBSERVATIONS

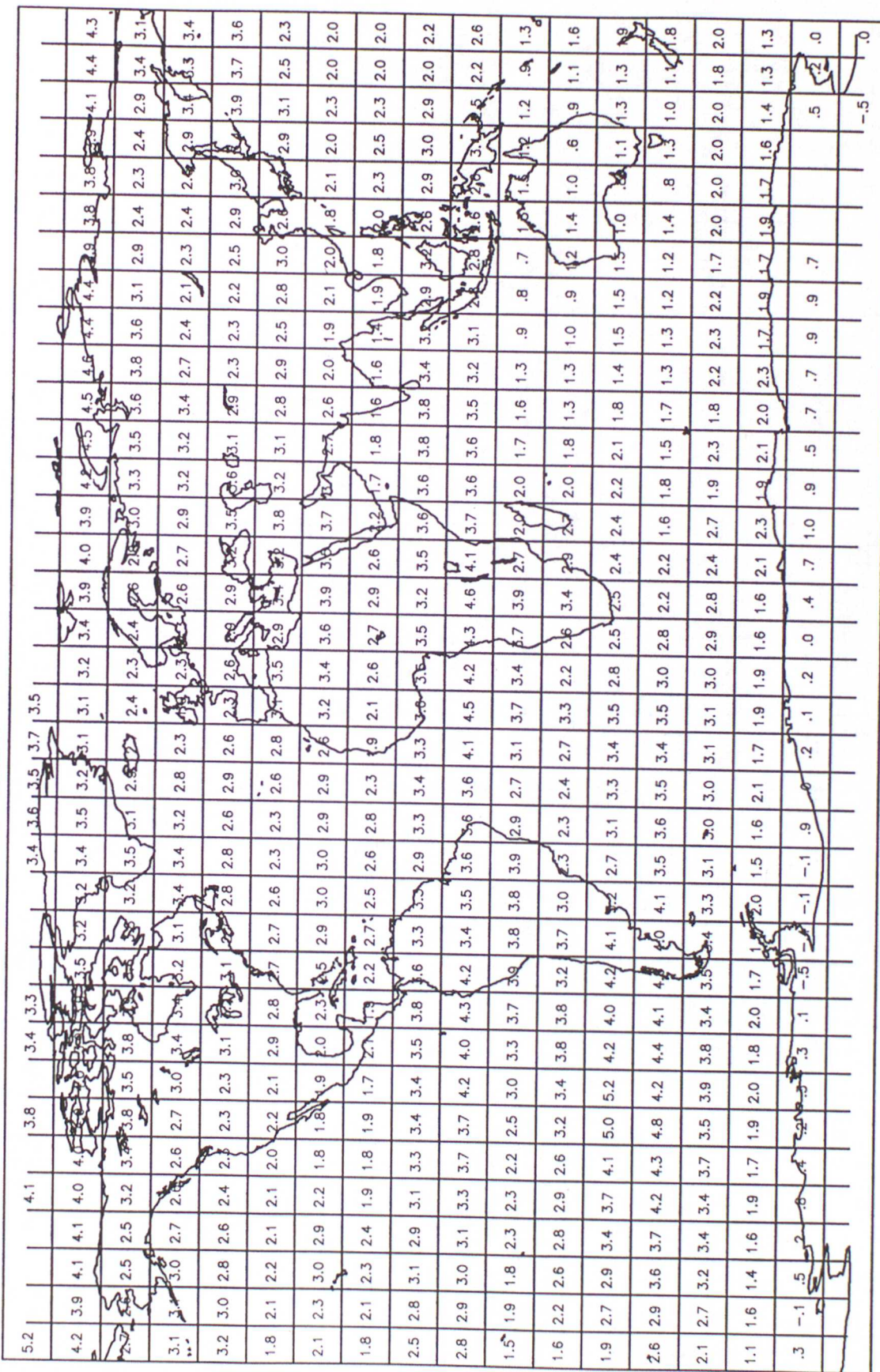
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
 JUNE 1996
 NOAA-12, USING ALL OBSERVATIONS
 VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
JUNE 1996



VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

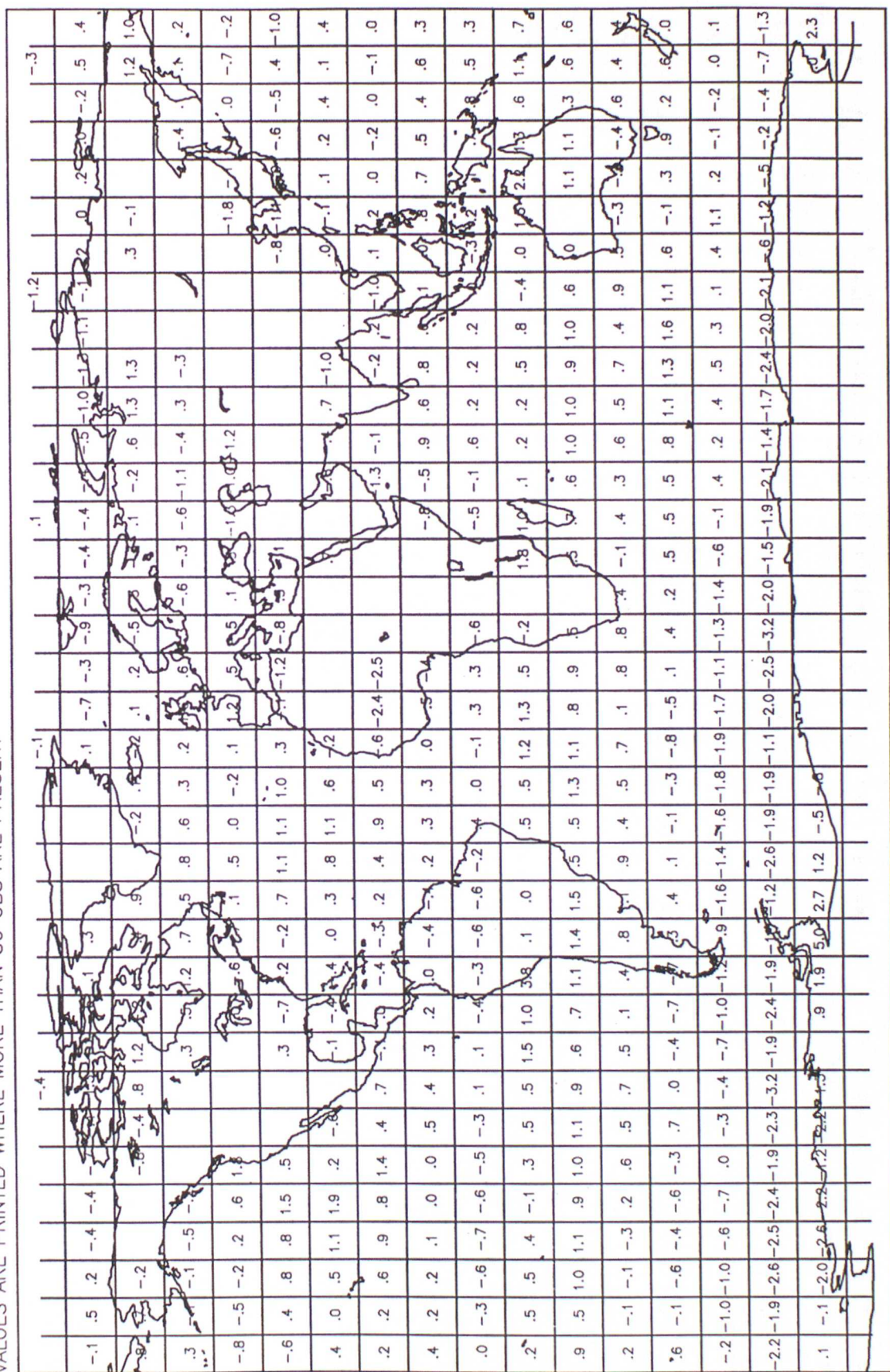
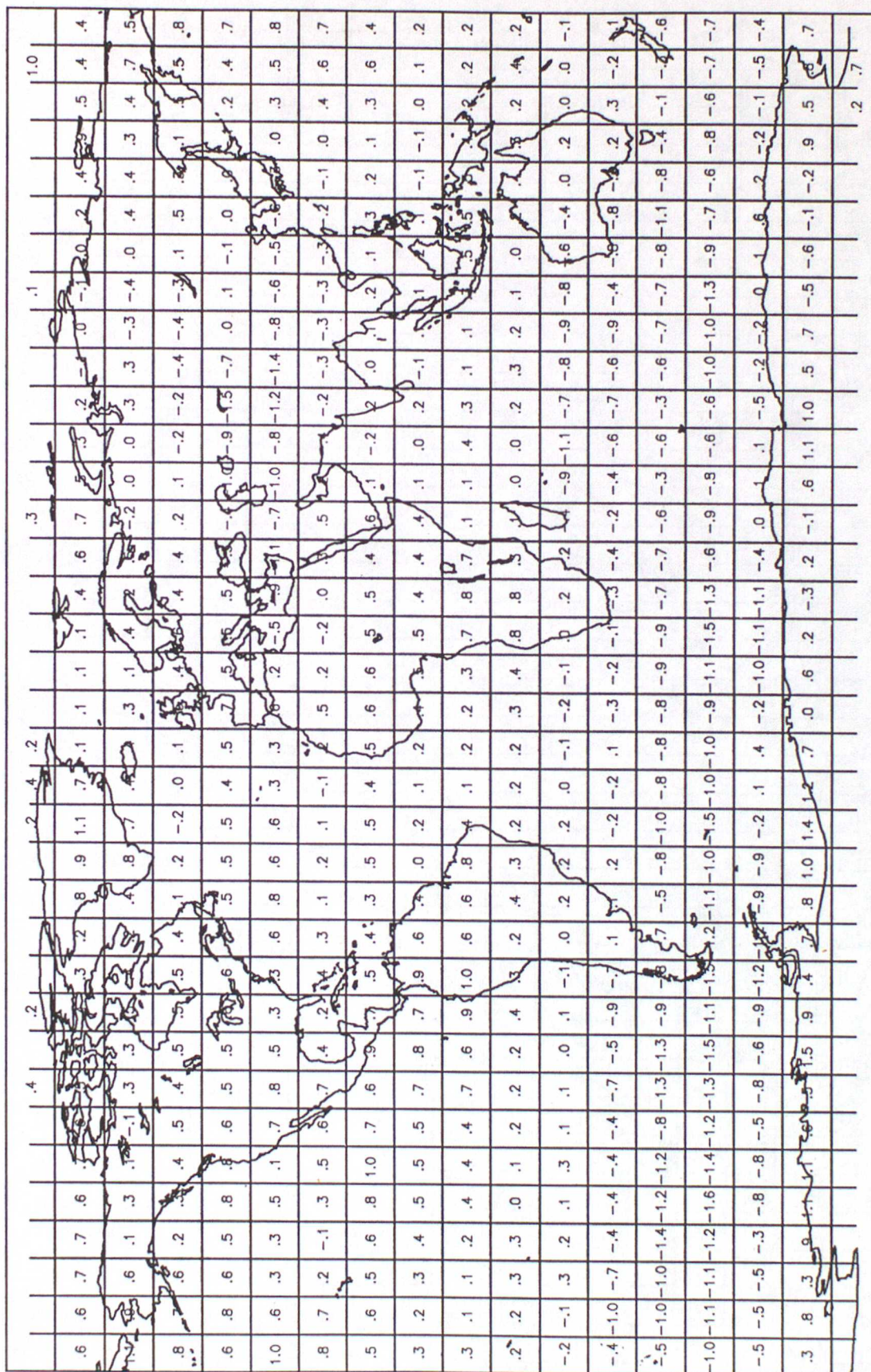


FIGURE 29

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
 JUNE 1996
 NOAA-14, USING ALL OBSERVATIONS
 VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

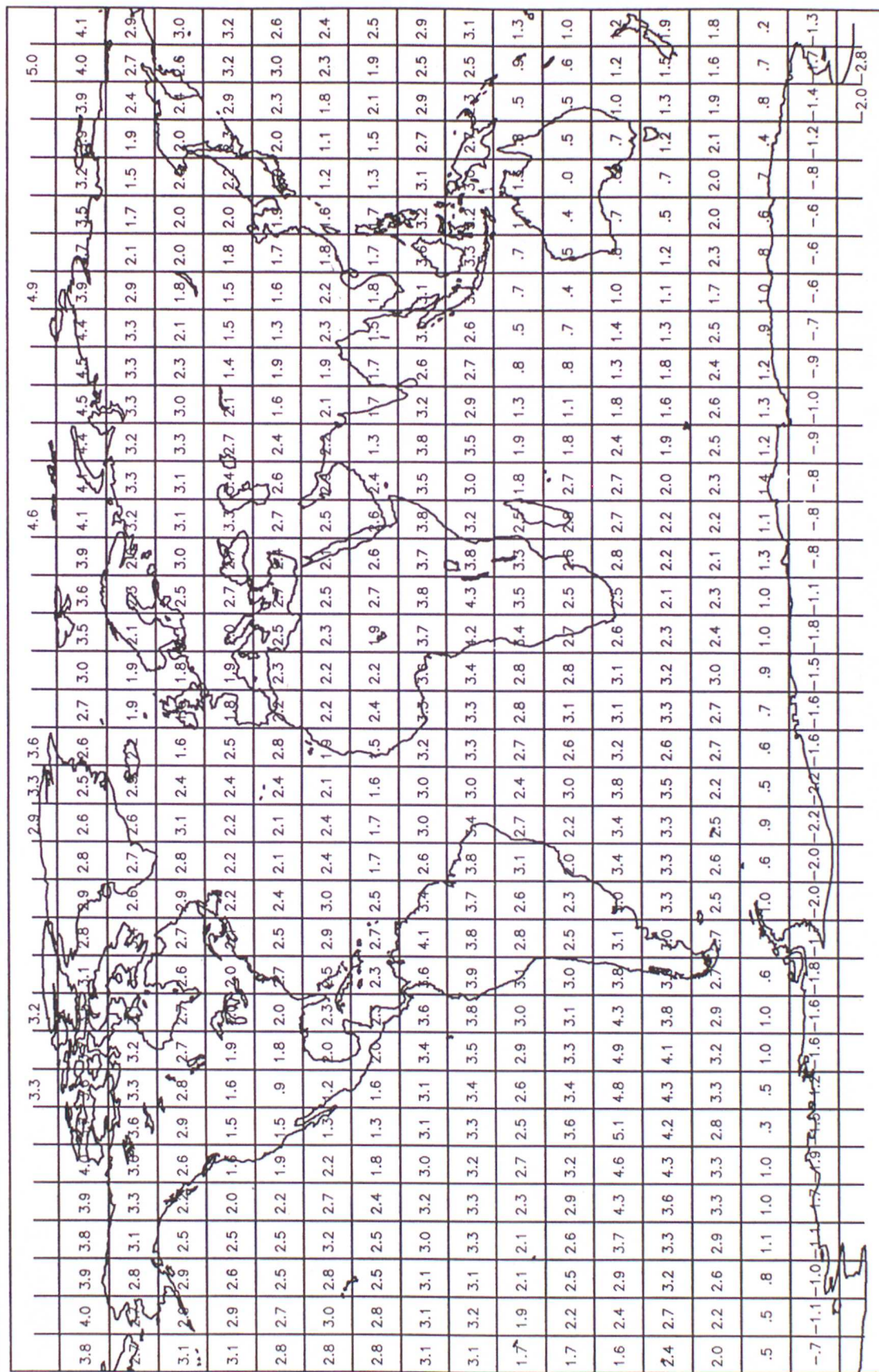


TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)

DATA TYPE:- DRIFTER

MONITORING CENTRE: BRACKNELL

MONTH: June, 1996

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Reports from each unique identifier for drifting buoy.
Area monitored		:10°N - 80°N, 85°W - 0°W
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:All hours combined.
Elements monitored		:Mean sea-level pressure (hPa) :Wind speed (m s^{-1}) :Wind direction (degrees)
Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. N.B. A positive bias indicates the observation is veered to the background
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors
GROSS ERROR LIMITS	:15 hPa (pressure) :25 m s^{-1} (Vector Wind)	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
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MEAN SEA LEVEL PRESSURE

25565	53.5	-31.2	ALL	MSLP	SUR	472	0	0	1.7	0.1	1.7
29606	31.9	-49.6	ALL	MSLP	SUR	13	0	0	0.8	-1.4	1.6
41526	34.9	-57.6	ALL	MSLP	SUR	218	0	0	0.8	-0.1	0.9
41585	33.0	-45.5	ALL	MSLP	SUR	332	0	0	0.7	-0.2	0.7
44549	58.0	-48.6	ALL	MSLP	SUR	734	0	0	1.2	-0.1	1.2
44613	43.2	-11.9	ALL	MSLP	SUR	1155	1	0	0.8	-0.2	0.8
44616	59.0	-25.4	ALL	MSLP	SUR	1712	8	0	1.2	0.6	1.3
44727	40.9	-16.0	ALL	MSLP	SUR	937	2	0	0.7	-0.3	0.8
44728	56.5	-29.5	ALL	MSLP	SUR	1435	5	0	1.2	0.2	1.3
44760	22.1	-40.4	ALL	MSLP	SUR	294	1	0	0.9	-0.3	1.0
44763	56.5	-34.1	ALL	MSLP	SUR	1723	4	0	1.2	0.2	1.2
44765	57.7	-30.3	ALL	MSLP	SUR	1490	5	0	1.2	-0.3	1.2
44767	55.7	-35.8	ALL	MSLP	SUR	1607	3	0	1.2	0.2	1.2
44768	61.0	-33.8	ALL	MSLP	SUR	1884	2	0	1.0	0.1	1.0
44769	55.9	-26.3	ALL	MSLP	SUR	1733	3	0	1.3	0.0	1.3
44770	23.8	-48.6	ALL	MSLP	SUR	524	2	0	0.8	0.1	0.8
44771	51.9	-37.2	ALL	MSLP	SUR	1474	7	0	1.4	-0.1	1.4
44772	53.7	-31.9	ALL	MSLP	SUR	1544	3	0	1.3	0.0	1.3
44773	54.0	-16.3	ALL	MSLP	SUR	1163	8	1	1.3	0.1	1.3
44774	49.2	-33.5	ALL	MSLP	SUR	1421	1	0	1.5	-0.2	1.5
44775	51.8	-49.3	ALL	MSLP	SUR	615	2	0	1.4	-0.5	1.5
44777	54.6	-47.0	ALL	MSLP	SUR	719	0	0	1.7	0.2	1.7
44778	53.5	-43.5	ALL	MSLP	SUR	700	3	0	1.7	-0.2	1.7
44911	53.6	-49.7	ALL	MSLP	SUR	109	1	1	1.7	-0.1	1.7
49606	31.9	-53.8	ALL	MSLP	SUR	9	0	0	0.9	-0.6	1.1
61521	36.0	-4.1	ALL	MSLP	SUR	19	0	0	0.7	0.3	0.7
62501	50.2	-18.5	ALL	MSLP	SUR	585	0	0	1.1	0.0	1.1
62503	44.7	-14.5	ALL	MSLP	SUR	539	0	0	0.9	0.0	0.9
62504	46.2	-7.8	ALL	MSLP	SUR	571	0	0	0.9	0.2	0.9
62505	48.5	-20.2	ALL	MSLP	SUR	555	0	0	1.2	0.1	1.2
62506	50.0	-18.3	ALL	MSLP	SUR	465	0	0	2.2	-0.3	2.2
62507	42.0	-21.8	ALL	MSLP	SUR	222	7	3	2.7	0.4	2.7
62508	48.9	-24.5	ALL	MSLP	SUR	618	0	0	1.1	0.4	1.2
62510	43.3	-14.1	ALL	MSLP	SUR	569	0	0	0.7	0.4	0.8
62512	42.4	-19.5	ALL	MSLP	SUR	336	0	0	0.9	0.7	1.1
62910	59.8	-34.8	ALL	MSLP	SUR	242	0	0	0.9	0.3	1.0
63661	44.7	-63.6	ALL	MSLP	SUR	21	2	10	1.1	7.2	7.3
65594	61.2	-39.9	ALL	MSLP	SUR	1835	0	0	1.0	-0.3	1.1
65595	55.9	-43.9	ALL	MSLP	SUR	1367	1	0	1.1	-0.2	1.2
65598	58.4	-40.1	ALL	MSLP	SUR	1531	19	1	1.4	-0.4	1.4
71544	44.7	-63.6	ALL	MSLP	SUR	16	0	0	0.9	-2.4	2.6
71545	44.7	-63.6	ALL	MSLP	SUR	20	0	0	1.6	-3.0	3.4
71546	44.7	-63.6	ALL	MSLP	SUR	23	0	0	1.4	-3.1	3.4
71557	44.7	-63.6	ALL	MSLP	SUR	17	17	100	0.0	0.0	0.0

WIND SPEED

29606	31.9	-49.6	ALL	SPEED	SUR	13	0	0	1.8	0.4	1.9
41526	34.9	-57.6	ALL	SPEED	SUR	212	0	0	1.8	-2.1	2.8
41585	33.0	-45.5	ALL	SPEED	SUR	103	0	0	1.3	0.4	1.4
44613	43.2	-11.9	ALL	SPEED	SUR	1076	0	0	2.0	-1.3	2.4
44765	57.7	-30.3	ALL	SPEED	SUR	1	0	0	0.0	-12.9	12.9
44771	51.9	-37.2	ALL	SPEED	SUR	1	1	100	0.0	0.0	0.0
44772	53.7	-31.9	ALL	SPEED	SUR	1	0	0	0.0	-4.5	4.5
49606	31.9	-53.8	ALL	SPEED	SUR	7	0	0	1.4	-1.2	1.8
65598	58.4	-40.1	ALL	SPEED	SUR	18	0	0	2.6	-7.7	8.2

WIND DIRECTION

29606	31.9	-49.6	ALL	DIRN.	SUR	9	0	0	36.3	-2.1	36.4
41526	34.9	-57.6	ALL	DIRN.	SUR	132	0	0	17.9	4.1	18.3
41585	33.0	-45.5	ALL	DIRN.	SUR	66	0	0	52.0	-57.8	77.8
44613	43.2	-11.9	ALL	DIRN.	SUR	712	0	0	21.7	-4.7	22.2

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
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WIND DIRECTION

44765	57.7	-30.3	ALL	DIRN.	SUR	1	0	0	0.0	122.1	122.1
44771	51.9	-37.2	ALL	DIRN.	SUR	1	1	100	0.0	0.0	0.0
49606	31.9	-53.8	ALL	DIRN.	SUR	4	0	0	17.4	7.8	19.1
65598	58.4	-40.1	ALL	DIRN.	SUR	14	0	0	78.1	-44.8	90.1

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: June, 1996

Monitoring procedures:		
Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:40°N - 70°N, 60°W - 0°W.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:All hours combined.
Level(s) monitored		:300.0 - 150.0 hPa
Elements monitored		:TEMP in °C ; WIND in m s ⁻¹
Parameters monitored	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.
GROSS ERROR LIMITS	:10.0 °C ; 60 m s ⁻¹ Vector Wind	
SELECTION CRITERIA	:N REP ≥ 20	

IDENT.	N.REP.	TEMPERATURE				N.REP.	WIND				
		PG	PR	RMS	BIAS		PG	PR	PC	RMS	BIAS
AAL	3654	0	1	1.7	0.0	3657	0	1	0	7.4	0.9
AAN	73	1	3	1.7	-0.2	73	0	4	1	8.0	-0.9
ACA	1224	1	2	2.0	0.4	1251	0	2	1	6.6	0.0
AEA	398	8	42	2.7	1.0	389	0	4	0	9.7	1.5
AEL	309	1	3	2.1	-0.2	317	0	4	0	9.1	0.6
AFL	143	1	100	2.8	1.7	140	0	7	0	9.4	1.0
AFR	829	1	3	1.8	-0.1	846	0	4	0	7.5	1.1
AIC	29	0	0	2.4	1.3	32	0	3	0	12.4	2.4
AIH	121	1	5	1.7	-0.3	123	0	5	0	9.0	0.2
AJM	30	0	3	1.3	-0.5	31	0	3	0	5.8	0.0
AMT	24	0	8	1.9	0.6	35	0	9	0	7.3	1.7
AMX	143	1	3	2.1	0.3	144	0	3	0	10.4	0.6
ANZ	201	0	0	1.9	-0.9	202	0	1	1	5.6	0.6
AOM	207	0	3	1.8	0.9	211	0	5	0	8.7	1.2
ATN	33	0	3	2.1	-0.1	32	0	100	0	18.1	7.3
AUA	41	0	0	1.6	-0.8	39	0	0	0	6.8	1.9
AVA	121	0	1	1.6	-0.1	124	0	1	0	8.2	0.6
AZA	520	0	3	2.2	0.3	536	0	4	0	7.8	1.6
BAL	332	1	20	1.8	-0.8	336	0	21	0	7.5	1.0
BAW	1504	0	2	1.9	-0.1	1526	0	3	1	7.3	0.7
BBB	27	0	0	1.5	-0.2	27	4	4	0	7.5	2.0
BWA	79	1	4	2.0	1.2	80	0	3	0	7.5	0.6
CDN	823	0	1	1.8	0.6	828	0	3	2	6.9	0.6
CFG	510	0	2	2.0	-1.0	519	0	4	0	8.6	0.7
CKT	92	0	7	2.1	0.6	92	0	9	0	8.3	-0.7
CLI	251	0	1	2.1	0.0	255	0	2	0	7.8	0.8
CLX	149	0	0	1.7	-0.4	154	0	0	0	5.7	-0.1
CMM	323	0	1	1.7	-0.2	328	0	2	0	7.3	0.8
COA	496	1	1	1.8	0.9	492	0	2	1	8.1	0.8
CRL	158	1	2	1.6	0.4	165	0	4	0	8.1	0.1
CSA	55	2	2	2.0	-0.1	56	0	2	0	6.4	0.5
CTM	53	0	26	2.8	-1.1	56	0	23	0	9.5	-0.1
CUB	126	0	48	3.1	1.8	127	0	100	0	10.6	0.2
DAF	22	5	5	1.3	0.1	22	0	0	0	6.0	1.8
DAL	2581	0	2	2.0	0.4	2601	0	2	0	7.8	0.9
DHL	362	1	100	3.6	-1.1	368	0	5	0	9.5	0.4
DLH	2435	0	7	2.1	0.6	2465	0	10	2	7.2	0.8
DOA	20	0	5	1.5	0.6	21	0	14	0	8.0	-0.5
ELY	137	1	4	1.9	0.1	140	0	6	0	7.7	1.1
EWV	147	1	100	3.0	0.0	150	0	100	1	15.6	2.6
EXC	20	0	10	2.1	0.5	25	0	16	0	8.6	2.1
FDX	486	0	3	1.8	0.8	497	0	4	0	8.2	0.5
FIN	546	0	2	2.0	0.8	542	0	3	1	6.9	0.4
GAF	235	0	2	2.5	1.1	238	0	5	1	8.8	0.2
GTI	66	3	2	1.6	-0.2	66	0	2	0	7.3	1.3
HLF	92	0	3	1.8	-0.7	92	0	2	0	8.5	0.9
IBE	804	1	19	2.2	0.0	809	0	20	0	9.1	1.2
ICE	577	0	0	1.7	-0.1	573	0	1	1	6.4	1.1
KLM	1896	0	2	1.8	0.5	1914	0	2	0	7.1	0.8
LDA	118	0	14	2.1	-1.2	122	0	16	0	7.6	0.1
LDI	77	0	26	1.9	-1.2	76	0	29	0	8.0	0.2
LIB	112	0	3	2.0	0.6	116	0	3	0	7.1	0.6
LKR	34	3	9	2.7	0.4	35	0	3	0	12.2	-0.1
LOT	334	0	0	1.8	-0.8	334	0	2	0	8.6	0.3
LTU	525	0	3	1.9	0.2	525	0	4	0	8.3	0.8
MON	22	0	0	2.0	0.6	23	0	0	0	8.9	2.8
MPH	618	0	2	2.3	0.1	627	0	1	0	7.5	0.7
NWA	2890	1	2	2.5	0.9	2931	0	2	1	7.5	0.6
OAL	43	0	0	2.4	1.4	44	0	0	0	6.1	1.0

IDENT.	N.REP.	TEMPERATURE				N.REP.	WIND				BIAS
		PG	PR	RMS	BIAS		PG	PR	PC	RMS	
RAF	21	0	0	1.1	0.3	21	0	0	0	7.2	1.7
RCH	188	2	13	2.7	0.0	191	1	19	0	13.2	1.9
RIA	63	0	11	2.6	2.0	61	0	34	0	17.1	2.4
RJA	112	2	4	1.9	0.4	114	0	1	0	7.6	1.3
RRR	283	1	16	2.2	0.0	285	1	22	1	9.4	1.0
SAB	78	0	0	2.4	0.9	80	0	1	0	7.2	2.8
SAS	1222	0	0	1.7	0.0	1222	0	2	1	6.7	0.6
SIA	80	0	9	2.0	-1.0	82	0	7	0	6.4	-0.3
SLR	53	0	34	2.3	-0.5	54	0	33	0	7.6	-0.6
SPP	24	0	4	0.9	0.2	24	0	4	0	6.4	0.7
SVA	112	0	4	2.1	0.5	122	0	6	1	8.3	1.2
SWR	168	0	2	1.8	-0.1	171	0	4	0	7.9	1.9
TAP	447	1	9	2.3	0.6	450	0	9	0	8.4	2.2
TEJ	82	0	17	2.0	0.2	84	0	18	0	8.4	-0.4
TOW	81	4	4	1.9	-0.9	84	0	2	0	9.0	1.0
TSC	210	3	13	3.2	0.4	218	0	6	0	9.6	0.8
TWA	1457	0	2	1.9	0.0	1458	0	2	0	7.9	1.3
UAL	1721	0	1	2.0	-0.8	1743	0	2	0	6.6	0.6
UKR	26	27	58	4.6	3.5	26	0	46	0	18.3	6.4
ULE	130	3	1	2.0	0.6	129	0	3	0	8.6	2.1
UPS	473	2	15	1.8	-0.1	474	0	15	0	7.3	0.8
USA	231	0	2	1.7	0.1	231	0	3	0	6.8	0.7
VIA	78	1	8	1.7	1.0	79	0	8	0	7.9	1.9
VIR	111	2	1	2.4	0.1	118	0	1	0	8.0	1.7
WOA	168	1	5	1.8	0.7	169	0	7	1	7.1	0.8
BA	9807	0	16	1.3	0.4	9803	0	16	0	6.7	1.0
KL	3462	0	13	1.3	0.3	3462	0	13	0	6.9	0.9
LH	577	0	18	1.3	0.4	577	0	18	0	5.5	0.9
SV	100	0	9	1.7	0.7	100	0	11	0	6.7	0.2
N	289	0	3	2.7	0.8	309	0	3	0	8.2	0.9

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: June, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	100	17	0	10.7	12.6	6.6
DBBH	12	Z	100	12	0	18.4	19.2	-5.6
DBLK	00	Z	100	1	0	0.0	18.0	-18.0
DBLK	12	Z	100	11	0	23.5	32.1	21.8
EHOA	00	Z	100	1	0	0.0	2.0	2.0
EHOA	12	Z	100	19	0	13.9	15.4	6.6
FLOR	00	Z	100	1	0	0.0	18.0	-18.0
FNOR	00	Z	100	12	0	11.1	20.5	17.3
FNOR	12	Z	100	9	0	12.5	12.8	-2.6
FNOU	00	Z	100	12	0	17.4	21.0	11.8
FNOU	12	Z	100	9	0	8.8	10.2	-5.1
FNPB	00	Z	100	12	0	11.3	13.7	7.8
FNPB	12	Z	100	14	0	15.6	20.6	-13.4
FNRS	00	Z	100	9	0	12.4	14.7	8.0
FNRS	12	Z	100	6	0	13.3	18.9	-13.5
JBOA	00	Z	100	1	0	0.0	5.0	5.0
JCCX	00	Z	100	1	0	0.0	2.0	-2.0
JDWX	00	Z	100	1	0	0.0	15.0	-15.0
LDWR	00	Z	100	29	0	10.3	12.7	7.5
LDWR	12	Z	100	28	0	14.7	15.0	-3.2
OXVH2	00	Z	100	15	0	20.4	20.9	-4.3
OXVH2	12	Z	100	17	0	22.6	22.6	-0.9
OXYH2	00	Z	100	17	0	18.4	18.4	-0.4
OXYH2	12	Z	100	20	0	22.3	23.0	-5.3
SHIPS	00	Z	100	10	0	16.0	20.5	12.7
SHIPS	12	Z	100	8	0	10.0	26.5	24.5
UQYC	00	Z	100	1	0	0.0	29.0	29.0
V2EZ	00	Z	100	10	0	18.0	19.0	-6.2
V2EZ	12	Z	100	13	0	12.8	12.8	-0.7
V2GH	00	Z	100	17	0	21.2	27.4	-17.4
V2GH	12	Z	100	11	1	21.2	21.9	-5.6
V2LV	00	Z	100	24	0	11.4	14.0	8.1
V2LV	12	Z	100	25	0	16.5	16.6	-1.8
WTEA	00	Z	100	1	0	0.0	32.0	32.0
WTEU	00	Z	100	1	0	0.0	33.0	33.0
03953	00	Z	100	29	0	9.1	19.9	17.8
03953	12	Z	100	29	0	10.2	13.4	8.7
04018	00	Z	100	25	0	14.6	22.6	17.3
04018	12	Z	100	28	0	12.6	15.5	9.0
04220	00	Z	100	28	0	11.1	20.0	16.7
04220	12	Z	100	28	0	15.1	20.4	13.8
04270	00	Z	100	28	0	14.4	14.5	-0.9
04270	12	Z	100	28	0	16.6	16.7	-2.0
04339	00	Z	100	24	0	12.6	30.7	28.0
04339	12	Z	100	27	0	10.2	17.8	14.6
04360	00	Z	100	27	0	15.3	24.2	18.8
04360	12	Z	100	27	0	14.6	25.1	20.4
08001	00	Z	100	23	0	9.5	17.3	14.5
08001	12	Z	100	28	0	13.6	14.7	-5.4
08508	00	Z	100	27	0	13.1	19.5	14.5
08508	12	Z	100	27	0	16.6	17.3	-4.6
08594	00	Z	100	1	0	0.0	16.0	-16.0
08594	12	Z	100	26	0	15.4	17.4	7.9
60020	00	Z	100	28	0	14.9	26.4	21.9
60020	12	Z	100	29	0	16.4	16.7	2.9
71600	00	Z	100	21	0	8.0	10.3	6.4
71600	12	Z	100	24	0	19.9	22.1	9.6
72201	00	Z	100	27	0	40.9	58.7	42.1
72201	12	Z	100	27	0	35.3	48.8	33.7
72402	00	Z	100	27	0	19.8	53.1	49.3
72402	12	Z	100	27	0	23.2	51.2	45.7

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
74494	00	Z	100	29	0	21.8	36.4	29.1
74494	12	Z	100	29	0	23.5	57.1	52.1
78016	00	Z	100	1	0	0.0	23.0	-23.0
78016	12	Z	100	28	0	11.2	16.0	-11.4

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: June, 1996

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS		:Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	500	17	0	8.2	9.2	4.3
DBBH	12	Z	500	12	0	8.8	8.9	-0.9
DBLK	00	Z	500	1	0	0.0	3.0	3.0
DBLK	12	Z	500	11	0	11.2	13.3	7.2
EHOA	00	Z	500	1	0	0.0	18.0	18.0
EHOA	12	Z	500	19	0	5.6	9.5	7.7
FLOR	00	Z	500	1	0	0.0	10.0	-10.0
FNOR	00	Z	500	12	0	7.3	8.7	4.8
FNOR	12	Z	500	9	0	8.1	8.1	0.6
FNOU	00	Z	500	13	0	9.2	9.7	3.2
FNOU	12	Z	500	10	0	7.2	7.8	-3.1
FNPB	00	Z	500	12	0	7.3	9.5	6.0
FNPB	12	Z	500	14	0	5.8	7.2	-4.1
FNRS	00	Z	500	9	0	8.0	8.0	-0.2
FNRS	12	Z	500	6	0	7.9	11.0	-7.7
JBOA	00	Z	500	1	0	0.0	5.0	-5.0
JCCX	00	Z	500	1	0	0.0	1.0	1.0
JDWX	00	Z	500	1	0	0.0	8.0	8.0
LDWR	00	Z	500	28	1	10.4	10.8	-2.9
LDWR	12	Z	500	28	0	10.4	13.1	-8.0
OXVH2	00	Z	500	16	0	13.5	15.1	-6.8
OXVH2	12	Z	500	18	0	24.8	26.7	-10.1
OXYH2	00	Z	500	20	0	13.6	15.9	-8.3
OXYH2	12	Z	500	20	0	16.7	20.7	-12.3
SHIPS	00	Z	500	11	0	14.8	15.7	5.3
SHIPS	12	Z	500	8	0	5.5	7.8	-5.5
UQYC	00	Z	500	1	0	0.0	23.0	23.0
V2EZ	00	Z	500	13	0	16.7	21.3	-13.2
V2EZ	12	Z	500	13	0	15.7	17.5	-7.8
V2GH	00	Z	500	22	0	13.6	14.7	-5.6
V2GH	12	Z	500	16	1	12.3	12.3	0.2
V2LV	00	Z	500	25	0	7.1	9.1	5.7
V2LV	12	Z	500	27	0	9.8	9.9	1.1
WTEA	00	Z	500	1	0	0.0	26.0	26.0
WTEU	00	Z	500	1	0	0.0	33.0	33.0
03953	00	Z	500	29	0	11.5	12.7	5.5
03953	12	Z	500	29	0	8.1	9.1	4.2
04018	00	Z	500	29	0	11.7	11.7	0.7
04018	12	Z	500	28	0	11.9	11.9	0.1
04220	00	Z	500	28	0	9.8	11.6	-6.3
04220	12	Z	500	28	0	10.1	13.8	-9.4
04270	00	Z	500	28	0	15.5	15.5	0.1
04270	12	Z	500	28	0	16.7	18.2	-7.4
04339	00	Z	500	24	0	11.1	11.2	-0.6
04339	12	Z	500	25	0	12.1	12.1	-0.9
04360	00	Z	500	27	0	11.5	11.7	-2.2
04360	12	Z	500	27	0	9.9	11.9	-6.6
08001	00	Z	500	27	0	10.8	11.0	2.4
08001	12	Z	500	28	0	9.2	14.9	-11.8
08508	00	Z	500	27	0	6.8	8.0	4.2
08508	12	Z	500	28	0	9.5	9.5	-0.1
08594	00	Z	500	1	0	0.0	7.0	-7.0
08594	12	Z	500	26	0	10.4	10.6	-2.1
60020	00	Z	500	28	0	9.0	11.9	7.9
60020	12	Z	500	29	0	8.7	9.1	2.5
71600	00	Z	500	21	0	10.3	10.7	2.8
71600	12	Z	500	24	0	10.4	11.2	4.1
72201	00	Z	500	27	0	11.0	14.3	9.1
72201	12	Z	500	29	0	9.6	13.4	9.3
72402	00	Z	500	28	0	9.5	13.6	9.7
72402	12	Z	500	27	0	9.4	14.4	10.9

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
74494	00	Z	500	29	0	8.0	8.2	1.6
74494	12	Z	500	29	0	9.3	9.4	1.3
78016	00	Z	500	1	0	0.0	18.0	-18.0
78016	12	Z	500	28	0	7.7	10.5	-7.2

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: June, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in m s ⁻¹
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	100	17	0	0	0.0	-0.2	0.3
DBBH	12	V	100	12	0	0	1.7	0.1	-0.1
DBLK	00	V	100	1	0	0	2.0	1.2	4.2
DBLK	12	V	100	11	0	0	2.0	-1.7	0.7
EHOA	00	V	100	1	0	0	5.5	3.0	-3.6
EHOA	12	V	100	19	0	0	5.5	-2.0	-2.5
FLOR	00	V	100	1	0	0	3.3	2.0	1.2
FNOR	00	V	100	11	0	0	3.3	-0.6	0.4
FNOR	12	V	100	9	0	0	1.7	-1.1	-0.7
FNOU	00	V	100	13	0	0	1.7	0.1	0.7
FNOU	12	V	100	9	0	0	3.0	0.7	0.4
FNPB	00	V	100	12	0	0	3.0	-0.6	-0.2
FNPB	12	V	100	14	0	0	2.0	-1.1	-0.5
FNRS	00	V	100	8	0	0	1.6	0.8	-1.1
FNRS	12	V	100	6	0	0	1.6	1.9	-1.5
JBOA	00	V	100	1	0	0	1.6	0.4	-2.0
JCCX	00	V	100	1	0	0	3.3	1.3	-1.4
JDWX	00	V	100	1	0	0	3.3	1.5	-0.6
LDWR	00	V	100	29	0	0	3.3	-0.3	0.7
LDWR	12	V	100	28	0	0	1.5	-0.2	0.2
OXVH2	00	V	100	13	0	0	1.1	-0.7	-0.2
OXVH2	12	V	100	17	0	0	2.0	-0.4	0.1
OXYH2	00	V	100	17	0	0	2.0	0.1	0.2
OXYH2	12	V	100	20	0	0	1.5	-0.4	0.3
SHIPS	00	V	100	7	0	28	1.1	-6.0	1.0
SHIPS	12	V	100	4	0	0	1.1	1.1	0.5
UQYC	00	V	100	1	0	0	1.1	-0.4	2.3
V2EZ	00	V	100	10	0	0	3.3	-0.7	0.1
V2EZ	12	V	100	13	0	0	1.5	0.0	0.0
V2GH	00	V	100	17	0	0	2.0	2.0	1.5
V2GH	12	V	100	12	0	8	5.2	0.8	3.1
V2LV	00	V	100	24	0	0	6.6	-0.2	0.8
V2LV	12	V	100	25	0	0	4.0	-1.1	-0.1
WTEA	00	V	100	1	0	0	4.6	0.0	1.0
03953	00	V	100	29	0	0	2.4	0.6	0.5
03953	12	V	100	29	0	0	2.3	-0.5	1.0
04018	00	V	100	25	0	0	1.8	-0.5	-0.6
04018	12	V	100	26	0	0	1.8	-1.5	0.2
04220	00	V	100	28	0	0	1.1	-1.0	0.6
04220	12	V	100	28	0	0	1.5	-0.7	-0.2
04270	00	V	100	28	0	0	1.6	-0.2	0.8
04270	12	V	100	28	0	0	1.6	-1.2	0.6
04339	00	V	100	24	0	0	1.4	-0.3	0.1
04339	12	V	100	27	0	0	1.5	-0.3	0.1
04360	00	V	100	27	0	0	1.2	-0.8	0.3
04360	12	V	100	27	0	0	1.5	-1.1	-0.2
08001	00	V	100	22	0	0	4.9	-0.2	1.3
08001	12	V	100	27	0	0	2.3	-0.2	0.5
08508	00	V	100	27	0	0	3.2	0.5	0.8
08508	12	V	100	27	0	0	3.0	-1.2	0.5
08594	00	V	100	1	0	0	2.1	-3.3	0.5
08594	12	V	100	24	0	0	2.1	0.1	-2.1
60020	00	V	100	28	0	0	5.0	1.4	1.0
60020	12	V	100	29	0	0	4.1	0.3	-0.2
71600	00	V	100	21	0	0	3.9	-0.1	0.8
71600	12	V	100	24	0	0	1.9	-0.8	0.0
72201	00	V	100	27	0	0	1.6	0.0	1.1
72201	12	V	100	27	0	3	2.9	0.1	-1.0
72402	00	V	100	24	0	0	3.0	0.1	-0.3
72402	12	V	100	24	0	0	3.3	-0.6	-1.3
74494	00	V	100	29	0	0	2.7	-0.5	-0.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
74494	12	V	100	29	0	0	2.3	0.2	0.2
78016	00	V	100	1	0	0	5.2	5.7	-2.3
78016	12	V	100	28	0	0	5.2	0.5	0.1

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: June, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in m s ⁻¹
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS:	Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS		:Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	500	17	0	0	0.0	0.9	0.4
DBBH	12	V	500	12	0	0	2.2	0.1	-0.3
DBLK	00	V	500	1	0	0	1.6	-2.6	0.2
DBLK	12	V	500	11	0	0	1.6	0.1	0.0
EHOA	00	V	500	1	0	0	4.0	-1.1	5.8
EHOA	12	V	500	19	0	0	4.0	0.5	1.4
FLOR	00	V	500	1	0	0	3.3	0.2	-2.7
FNOR	00	V	500	11	0	0	3.3	-0.7	-0.2
FNOR	12	V	500	9	0	0	2.4	0.0	-1.1
FNOU	00	V	500	13	0	0	2.4	-0.4	-0.7
FNOU	12	V	500	10	0	0	3.9	-0.6	0.0
FNPB	00	V	500	12	0	0	2.5	-1.2	-0.5
FNPB	12	V	500	13	0	0	2.1	-1.1	-1.0
FNRS	00	V	500	9	0	0	2.8	-0.1	-1.3
FNRS	12	V	500	6	0	0	2.8	2.2	-2.6
JBOA	00	V	500	1	0	0	2.8	-0.3	-0.2
JCCX	00	V	500	1	0	0	2.8	0.6	0.6
JDWX	00	V	500	1	0	0	2.8	-0.1	-0.8
LDWR	00	V	500	29	0	0	2.8	0.6	0.3
LDWR	12	V	500	28	0	0	3.4	1.4	0.6
OXVH2	00	V	500	16	0	0	3.5	-0.4	0.4
OXVH2	12	V	500	17	0	0	3.7	0.5	0.4
OXYH2	00	V	500	20	0	0	3.5	0.1	1.0
OXYH2	12	V	500	20	0	0	2.3	-0.9	-0.2
SHIPS	00	V	500	9	0	22	2.4	-7.0	2.0
SHIPS	12	V	500	8	0	0	2.4	3.7	0.1
UQYC	00	V	500	1	0	200	2.4	-0.2	3.1
V2EZ	00	V	500	13	0	0	6.3	-0.1	0.0
V2EZ	12	V	500	13	0	0	4.2	1.1	0.0
V2GH	00	V	500	22	0	0	2.2	0.1	-0.2
V2GH	12	V	500	16	0	0	2.5	-0.5	-0.7
V2LV	00	V	500	24	0	0	2.9	-0.3	-0.3
V2LV	12	V	500	25	0	0	2.5	-1.1	0.2
WTEA	00	V	500	1	0	0	3.1	-1.3	0.6
WTEU	00	V	500	1	0	0	2.7	0.1	0.4
03953	00	V	500	29	0	0	3.3	-0.2	-0.1
03953	12	V	500	29	0	0	2.7	-0.8	0.5
04018	00	V	500	29	0	0	2.3	-0.2	0.7
04018	12	V	500	27	0	0	2.7	0.9	0.1
04220	00	V	500	27	0	0	3.6	-0.6	1.9
04220	12	V	500	28	0	0	3.2	0.3	-0.8
04270	00	V	500	28	0	0	3.3	-0.2	1.0
04270	12	V	500	28	0	0	4.2	0.8	0.1
04339	00	V	500	24	0	0	4.1	1.4	0.3
04339	12	V	500	25	0	0	3.7	0.0	0.8
04360	00	V	500	27	0	0	2.4	-0.2	1.0
04360	12	V	500	27	0	0	2.5	-0.5	-0.6
08001	00	V	500	26	0	0	2.7	0.4	-0.7
08001	12	V	500	28	0	0	2.3	-0.4	-0.4
08508	00	V	500	27	0	0	3.8	0.3	-1.6
08508	12	V	500	28	0	0	2.5	-0.5	-1.2
08594	00	V	500	1	0	0	2.3	-4.2	2.8
08594	12	V	500	24	0	0	2.3	0.5	0.3
60020	00	V	500	28	0	0	2.0	0.4	0.4
60020	12	V	500	29	0	0	3.4	0.4	0.1
71600	00	V	500	21	0	0	2.7	-0.5	-0.2
71600	12	V	500	24	0	0	2.0	1.3	1.4
72201	00	V	500	27	0	0	2.9	0.6	-0.7
72201	12	V	500	29	0	0	1.9	0.1	0.1
72402	00	V	500	25	0	0	2.6	0.2	0.6
72402	12	V	500	26	0	0	2.2	-0.8	0.8

WMO	OBS			NUM	NUM	%				
IDENT	TIME	ELM	LEV	OBS	GROSS	REJ	RMS	UBIAS	VBIAS	
74494	00	V	500	29	0	0	2.2	-0.6	0.5	
74494	12	V	500	29	0	0	2.4	0.8	2.0	
78016	00	V	500	1	0	0	2.7	-2.9	1.5	
78016	12	V	500	28	0	0	2.7	-0.6	1.0	

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5, 10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s ⁻¹
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45